PERIODICAL ROOM
RECEIVED
APR 14 1916
UNIV. OF MICH. LIBRARY

Illinois Medical Journal

OFFICE OF PUBLICATION 3338 OGDEN AVENUE, CHICAGO

Vol. XXIX, No. 4 **CHICAGO, APRIL, 1916** **$2.00 a Year**

CONTENTS

ORIGINAL ARTICLES

PAGE

Every Day Factors Affecting Life and Longevity. *Charles J. Whalen, M. D., Chicago* 241

The Treatment of Extra-Uterine Pregnancy. *Aime Paul Heineck, M. D., Chicago* 247

Recognition and Treatment of Ectopic Gestation. *E. E. Montgomery, M. D., Philadelphia, Pa.* 254

The Technique of the Enucleation Thyroidectomy. *Paul Gronnerud, M. D., Chicago* 259

Thyroid Enlargements. *Stephen C. Bradley, M. D., Marshall, Ill.* 262

Hydrotherapy. *W. G. Russell, M. D., Fortress Monroe, Va.* 264

Heredity and Evolution. *C. L. Redfield, Chicago* 273

PAGE

Why We Need a System in Our Physical Examinations. *Thomas P. Foley, M. D., Chicago* 274

Hypertension. *James G. Carr, M. D., Chicago* 276

Hemolytic Icterus and Other Anemias with Special Reference to the Fragility of the Red Corpuscles. *David J. Davis, M. D., Chicago* 280

Follicular Tonsillitis in Its Relation to Systemic Infection. *L. Edwin Barnes, M. D., Chicago* 283

A Preliminary Report on Graduated Exercise as Inaugurated at the Cook County Tuberculosis Hospital. *H. H. Bay, M. D., Oak Forest, Ill.* 285

A Bad Stomach and Its Interpretation. *W. F. Grinstead, M. D., Cairo, Ill.* 289

(Continued on adv. page 28)

Entered as Second-Class Matter August 28, 1913, at the Post Office, Chicago, Illinois, under the Act of March 3, 1879.

Medical Clinics of Chicago

The 18 Clinics You Get in the March Number

CLINIC OF DR. CHARLES SPENCER WILLIAMSON, *Cook County Hospital*
- Bronchiectasis with Secondary Cardiac Decompensation. Two illustrations
- Acromegaly of Long Standing without Subjective Symptoms. Four illustrations
- Acute General Tubercular Adenitis (Bovine Type) Simulating Abdominal Type of Hodgkin's Disease. Two illustrations
- Gangrene of Lung. One illustration
- Carcinoma of Stomach Simulating Pernicious Anemia

CLINIC OF DR. ROBERT B. PREBLE, *St. Luke's Hospital*
- Acute Nephritis Following Acute Tonsillitis
- Cellulitis of Chest Producing Profound Sepsis and Delirium

CLINIC OF DR. ISAAC A. ABT, *Sarah Morris Memorial Hospital*
- Congenital Syphilis. 30 pages; two illustrations, one in colors

CLINIC OF DR. JAMES T. CASE (*Battle Creek Sanitarium*), *St. Luke's Hospital*
- Röntgenologic Aspects of Intestinal Stasis. 52 illustrations

CLINIC OF DR. RALPH C. HAMILL, *Northwestern University*
- Hysteria in a Strong Man
- Traumatism of Cauda Equina. Six illustrations
- Tumor of Spinal Cord. Two illustrations

CLINIC OF DR. FREDERICK TICE, *Cook County Hospital*
- Typhoid Resembling Pneumonia
- Banti's Disease. Three illustrations
- Autopsy Findings in Meningitis and Chronic Endocarditis with Acute Exacerbation

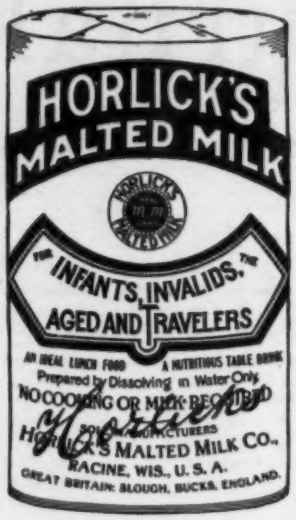
CLINIC OF DR. CHARLES L. MIX, *Mercy Hospital*
- Mitral Insufficiency and Stenosis with Embolus to Brain
- Primary Sarcoma of Fibula with Metastases to Brain and Cervical Glands. Wrongly Operated for Appendicitis and Gallstones.
- Abscess in Lung

Issued serially, one octavo of 200 pages, illustrated, every other month. Per Clinic Year (July, 1915 to May, 1916), six numbers: $8.00 net; cloth, $12.00 net.

W. B. SAUNDERS COMPANY Philadelphia and London

This Issue 6,500 Copies

ASK FOR HORLICK'S


HORLICK'S
MALTED MILK
FOR INFANTS, INVALIDS, AGED AND TRAVELERS
AN IDEAL LUNCH FOOD
A NUTRITIOUS TABLE DRINK
Prepared by Dissolving in Water Only
NO COOKING OR MILK REQUIRED
HORLICK'S MALTED MILK CO.,
RACINE, WIS., U. S. A.
GREAT BRITAIN: SLOUGH, BUCKS, ENGLAND.

THE ORIGINAL

HORLICK'S THE ORIGINAL MALTED MILK

enables the physician to prescribe a nutritious and digestible diet that is safe and dependable.

The superiority of **"HORLICKS"** has won for it the confidence and general good-will of the medical profession and dietitians.

As a result there are numerous imitations, and attempts are made to substitute these for the **Original Malted Milk.**

Therefore ask for it by name

HORLICK'S

and thus avoid substitutes

Horlick's Malted Milk Company
Racine, Wisconsin

Sterility

is very vital in an ampuled solution.
So are dosage-accuracy and chemical purity.
Our ampule solutions are sterile, accurate
and chemically pure.
Each ampule is in an individual carton fully labeled.
Your druggist can supply

if you insist. Our Ampule leaflet should be in your file.
There is a copy in Baltimore for you.
Our Ampules are an admirable adjunct to our line of
soluble hypodermic tablets and you know them.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. XXIX CHICAGO, ILL., APRIL, 1916 NO. 4

Original Articles

EVERY-DAY FACTORS AFFECTING HEALTH AND LONGEVITY.*

CHARLES J. WHALEN, M. A., M. D., LL. B.

CHICAGO.

No man lives or dies unto himself; all productive life is based on mutuality. Strength is the outcome of co-operation for mutual aid. If many sticks are firmly bound into one bundle the fagot cannot be broken; while if each stick is left separate its continuity is easily severed.

The progress and stability of our commonwealth depends entirely upon the health of the inhabitants; this again depends upon the home environments in which the children are reared. Our methods of supervising the health of the children of today will determine their future physical, mental and moral status.

The history of the world bears clear witness to the fact that real progress and enduring prosperity existed just in proportion as noble ideals and high standards of conduct were fostered in home life.

The most helpless thing in the world is the new-born infant. Figuratively speaking, it is blind, deaf and defenseless; there is within its tiny form the germ of all its physical beauty, moral powers, and intellectual greatness; yet if this child is deprived of intelligent care, the precious seeds may never grow and the bright promise for the future may never be fulfilled.

Insanitary surroundings, errors of dress, diet, fatigue either from premature or over-work, bad examples, insufficient opportunities for the exercise of latent powers and this child so full of possibilities for good may have them warped, checked or destroyed; with the result that, instead of being a blessing to the world, the child may only too easily become a burden. It is safe to state that not many children attain maturity in full possession of their birthright of mental, moral and physical health.

The influence of home standards, the surroundings, moral and physical, among which a child passes the first 12 years of its life are those which formulate its future, for this is the period when character is in the formative stage.

In our present-day slogan, "Disease Prevention," we attempt to establish the kingdom of right and healthful living; accordingly we teach people that they should build their houses for the free admission of sunlight, that under proper supervision it is well to sleep in the open air; that dust and flies are prolific carriers of infection.

That what we eat, and how we eat, play a considerable part in producing human disability; that assimilation and elimination concern vitally every function and organ of the body; that an intelligent supervision of these factors is of prime importance in disease prevention.

For the purpose of study, we may conveniently divide the subject into two classes—(1) a personal and (2) a public equation. The first relates to the individual and the family, dealing with such subjects as food cleanliness, bathing, sleep, rest, body warmth, etc.; the second, pertaining to the municipality, dealing with such subjects as air, ventilation, housing, heating, water supplies, food supplies, street and alley cleaning, sewage and refuse removal.

Personal hygiene as a factor in disease causation has been long known and emphasized by the profession. It has also been appreciated that it is the most difficult thing in the world to practice continuously and consistently.

Food is of great importance to the wellbeing of the race at all ages. As a causative factor in disease production, we recognize two forms: One due to underfeeding, met with exclusively in the young and manifesting itself in the clinical picture seen so frequently and known as malnutrition. The other form is met with in people past

*Read before Illinois State Medical Society, 1915; Section on Public Health and Hygiene.

middle life and due to over-eating and under-exercising.

The American adult today is eating two or three times as much food as is necessary to sustain the body at the highest point of efficiency. Older adults should eat less and adapt their diet to the changing conditions of life. People of sedentary habits or occupations indulge too freely in nitrogenous food. Proteid diet is the principal source of autointoxication and is responsible for many of the organic diseases met with, especially in people past middle life.

This commercial age is characterized by the sedentary life to an extraordinary degree. This is always abnormal. In sedentary life the maintenance of a high degree of physiologic resistance becomes difficult; if the resistance of the community in general is lowered, then the public health is correspondingly unfavorably affected.

There are suggestive symptoms of wholesale reaction against the evils of sedentary life. Public parks are being liberally provided; public and private gymnasiums are rapidly coming into being. Free public playgrounds now exist in many of our cities; vacations are more than ever the fashion; out-door sports and games are everywhere receiving increasing attention; also public baths and other devices for the promotion of personal hygiene are more and more coming into being.

Recreation: For this, home provision must be made. One reason for youthful restlessness is the repressed but natural craving for mirthful amusement. It will assuredly be sought elsewhere if not permitted at home; the thirst is too often quenched under most undesirable conditions. "All work and no play makes Jack a dull boy." Active brains and growing bodies need recreation. Moreover, the growing body needs rest. Sleep and innocent amusements are nature's means to this end. Give the young folks plenty of rest and time for play.

If, for any reason, rest is curtailed and recreation is not allowed, the store of energy is wasted. And sooner or later the child must pay the penalty in loss of bodily vigor.

The human body manufactures its supply of heat from food and exercise. It preserves heat by clothing. The colder the external air, the greater the loss of heat, especially if the body be ill fed or poorly clothed. Consequently, among the poorly nourished and insufficiently clad there is a craving for close, stuffy rooms, the result of which are colds, pneumonia, irritable temper and susceptibility to infections.

Personal hygiene can not attain its greatest efficiency without the co-operation of mind and body. There is an intimate relation between the physical and mental forces and they act and react in maintaining a stable and vigorous condition of the human organs. We should, therefore, always apprehend this and kindred principles and take account of them when their recognition is of prime importance in the prevention of disease.

Rest and sympathy are essentially hygienic needs. It is not work per se that tends to undermine vitality and lessen efficiency, but on the contrary it is a senseless and unnecessary worry. There are two kinds of things about which we should not worry; that which we can help and that which we cannot help. Therefore, the cardinal virtues of cheerfulness and contentment are essential factors to bring into vogue in disease prevention.

The modern conception of the municipal hygiene impresses one with its vast possibilities. Man is a gregarious animal, and today is crowding into cities as never before.

The question of how individuals and communities are to secure the best living conditions is today receiving national attention. It is not merely a problem for the poor or any one class, but on the contrary affects directly and vitally the whole community. Bad housing promotes industrial inefficiency, dependence, disability and disease, and tends to debase citizenship. That it increases vice and crime is no longer a question of doubt, the only question being the extent to which it contributes to these various conditions.

In an age characterized by urban life and possessing skyscrapers, tenement houses and other huge bee hives in which such a large percentage of the human family spend a large portion of their lives, buildings require for their proper construction, lighting, heating, air supply, water supply, gas supply and drainage, and the scientific services of architects and engineers.

Air supply is quite as important to mankind as the water or the milk supply. While human beings may survive and seemingly thrive in bad air for long periods of time, to breath impure air

means a process of slow poisoning. People do not usually die suddenly as the result of this slow poisoning; but they constantly "catch cold" or suffer from headaches, indigestion or other quite unnecessary minor miseries of life. Certainly for the best work and the longest life as well as for perfect health, the best atmosphere is none too good. Hence, the sanitary construction of houses and other buildings, the proper heating and ventilation of dwellings, schools, churches and public places demand and in the future will continue to receive a much larger share of our attention.

The creation of tenement house commissions, factory inspection boards, etc., has not solved the housing problem. These agencies have done a great deal to correct unsatisfactory conditions, but there is still much more to be accomplished.

Dr. Stella, after investigating the condition of the Italian population of the City of New York, says, that in one section in 130 apartments he found 1,100 people, exclusive of night lodgers.

He further states that the Italian children of New York City are not as robust as those brought up in the rural districts; that the proportion of the Italian recruits rejected in New York City is greater than in Italy. These defects he attributes to bad housing and lack of proper food.

A careful examination as to the height, weight and nutrition of 72,000 children in a large city, showed that the average boy or girl living with its parents in a house of only two rooms was distinctly smaller and lighter at the same age than was its companion who lived in a house of three rooms. The report says "Boys from 2-room houses were 11.7 lbs. lighter than boys from 4-room houses and 4.7 inches shorter; while girls from 2-room houses average 14 lbs. lighter and 5.3 inches shorter than their fellows from 4-room houses. Overcrowding is always associated with feebleness in some direction, not always obvious at the time but bound to show itself sooner or later.

Dr. Russell of London states that in London very few families survive for more than four generations, that many die out in three generations. That a true Londoner of the fifth or even the fourth generation is rare. A large proportion, probably the majority, lose the fine stock of health they brought with them from the country within two generations.

From the foregoing it is at once apparent that living conditions, such as overcrowding, lack of sufficient air, sunshine, etc., are the great factors in causing the increased mortality in large cities. It demonstrates that space is an important requirement for healthy life. That where several persons are crowded into one bedroom and spend many hours shut up in a small stuffy living room, just as vegetables bleach when trenched, so human beings fade and become ill when deprived of pure air and sunlight.

Diseases are frequently contracted through sleeping in beds that have been occupied by infected persons or by using the same towels and linen. Crowding together of persons of either or both sexes always is insanitary. It facilitates the spread of venereal and other contagious and infectious diseases.

From a municipal sanitary standpoint, buildings should not be higher than the width of the street on which they are situated; the chief objections being that they cut off the sunshine from the streets and from the opposite houses.

Sunshine is the most abundant, cheapest, and most efficient of disinfectants. The absence of this valuable disinfectant is the chief factor in causing the increased mortality in large cities. Therefore the lack of sunshine in homes, factories, etc., is a reproach on the intelligence of the inhabitants and demonstrates ignorance of laws of health and hygiene.

In certain cities of Europe there are laws fixing the maximum density of population. The housing of the working classes in many of our American cities is far from ideal; crowded into tenements, a large number of persons occupying rooms that are badly lighted and poorly ventilated, living under the most favorable environment for lowering vitality, which latter condition renders the individual especially susceptible to every form of disease.

From the above it is apparent that the neglect of the most necessary hygienic precautions may result in dreadful waste of human life.

It is also apparent that best results cannot be brought about by individual effort and that ideal living conditions can only be secured by state supervision.

On the other hand, there are many kinds and conditions of work which physically hurt the growing girl and unfit woman for her task of

child-bearing. It is no less certain that the mother's place is not in the factory or shop but in the home with her children.

Reasoning from cause to effect, demonstrates that the loss of baby life and the great percentage of physical, moral and mental disability begins in the girlhood of the mother. "Forty per cent of married women who have been factory or shop girls come under medical attention for pelvic troubles under thirty years of age. Few escape paying the penalty of overstrain.

"The unmarried as well as the married woman is subject to the physical limitations of her sex and each suffers alike from those incidents of industrial work most detrimental to the female reproductive system, such as overstrain." (Fatigue & Industry.)

Too, many employments which do not require constant standing bring their own special harm to woman workers. To lessen still more the chances of the child, it ordinarily cannot receive the proper care if the mother for economic or other reasons remains at her work in factory, shop or office. Fatigue, overwork and underfeeding of the mother before the child's birth, together with unhealthful food and insanitary environment for the child afterwards, complete the work of destruction.

Dust as a factor in disease production is of special interest. Air is of as much importance for the perpetuation of human life as is water or food. We hear repeatedly of measures being taken to improve the water supply, and of legislative enactments to prevent the adulteration of food. The purification of the air which is so essential for health, is rarely referred to. Most people are careful in regard to water supply and likewise equally particular about the quality and character of the food they eat, yet on the other hand they take into their respiratory passages, without thought or question of its purity, air vitiated with millions of particles of dust.

The effect of dust on the organs of respiration is mechanical, chemical, traumatic and pathogenic. Two or more of these effects are nearly always present and operative at the same time. From a public health standpoint, the pathogenic effect of the inhalation of dust is most important. While pathogenic germs may be found in almost all forms of city dust, they are especially frequent in rooms or hospitals in which patients with infectious diseases have been careless with the disposition of infectious material. In the home of tuberculous patients, where care is not taken to destroy the sputa, the bacillus is found in large numbers, in the sweepings from floors and in the dust scraped from the walls. A similar condition has been found in cases of diphtheria and other infectious diseases. Tuberculosis heads the list in this direction because of the long duration of the disease and the abundance of sputa containing the infectious material. The sputa is allowed to dry, and forms a part of the dust of the infected room and, as dust, is blown into the air. In this way not only is the room infected, but subsequently the house, with the possibility of eventually contaminating the whole community.

In certain occupations dust has an especially injurious effect upon the respiratory organs, as in cigar and cigarette makers, metal grinders, glass workers, stone cutters, coal miners, etc.

In our attempt to limit the spread of contagion by means of dust, there is one consideration which requires special mention, namely, the relation of domestic cleanliness to public hygiene. Not only should the houses be kept clean and as free as possible of dust, but the usual method of cleaning and dusting houses should be corrected. Sweeping should be so done that as little dust as possible is thrown into the air; the ordinary dusting brush should be banished from the household, for it simply distributes the dust which first vitiates the air and eventually falls again upon the surrounding objects. There should be used instead either damp or oily cloths, a method that may occupy more time, but is more thorough and requires less frequent repetitions.

In cases of illness, every precaution should be taken to avoid contaminating the air with infectious material. Members of the household should be shown how easily infection may be spread and how by ordinary care it may be avoided. The sputum from all patients suffering from a contagious disease should be deposited in vessels containing an antiseptic solution or in cloth that can be promptly destroyed by fire. Under no circumstances should sputa be allowed to become dry in cuspidors or on cloths. If such measures are carefully carried out it will materially assist in stamping out contagious and infectious diseases. If it were generally under-

stood that in instances where several members of a family die of tuberculosis, the result is due more to the inhalation of tuberculous infected dust and not to inheritance, the records of such cases would be of far less frequent occurrence.

In cities where a law prohibiting spitting on the floors is not enforced, a source of danger from dust, equally as conspicuous as street dust, but far more pernicious in its effects, is the dust of public conveyances. The expectorated material soon dries and becomes a part of the dust of the floor and later of the dust of the air and as such is inhaled by passengers. Bacteriologists have repeatedly shown the presence of pathogenic micro-organisms in sweepings of car floors and the possibility of contracting disease from this source especially in winter when the windows are closed. The chances of obtaining diseases from this source are enormously increased when individuals have been debilitated by sickness and when the normal resistance has been lowered.

La grippe, a most contagious disease, is no doubt largely due to exposure in the manner mentioned. What has been said pertains not only to public carriers, but as well to churches, theatres, public halls, etc.

It is ludicrous to see cities spending millions of dollars for drainage, sewage and other sanitary measures and neglecting the hygiene of public carriers which daily transport thousands of passengers.

Most of our large cities have enacted laws prohibiting spitting on the floors of public carriers, public halls and places of amusement. A rigid enforcement of the law will have a marked influence on the future number of reported cases of infectious diseases.

Another fruitful source of contamination of the community with infectious disease is by coughing and sneezing in public. It is surprising that sanitarians have paid so little attention to the grave dangers from sneezing in public or private places without covering the nose and mouth with a handkerchief. A no less dangerous and reprehensible habit is that of coughing without employing similar protections.

In both coughing and sneezing, infectious germs may be thrown into the air, each offender thus creating zones of danger that constantly menace those unfortunate enough to be in the vicinity. This danger is naturally increased in closed places or conveyances. In some diseased conditions coughing is unavoidable and necessary, as is sneezing and spitting, but such acts can be indulged in without menace to others by placing before and holding close against the face a clean handkerchief which should afterward be quietly and carefully placed in the pocket and not flaunted in the air.

We could soon stop these dangerous habits if every one would take upon himself the duty of joining in a crusade not only against the man who expectorates, but those who sneeze and cough in public places without protecting the face with a handkerchief. By this means alone can we do away with this disgusting practice that menaces public health.

Street cleaning, too, may spread contagion and affect public health chiefly on account of the dust created by city activity.

The cleaning of city streets is necessary for several reasons: First, the preservation of the public health; second, the physical comfort and convenience of the people; third, a regard for cleanliness and good appearance.

From a sanitary viewpoint, the preservation of public health must be considered of first importance.

The smells and effluvia from filth and decaying matter does not directly create or convey specific contagion but does affect health by lowering the vitality, in this way rendering those exposed to them more susceptible to disease. The organisms that cause specific diseases must reach the blood through physical contact or by conveyance in connection with solid or fluid matter introduced into the alimentary or respiratory systems.

In many cities, streets are the common dumping ground for refuse and dirt from every source. Frequently the cleanings from dwellings, business houses, etc., are swept into the street. Such sweepings frequently contain the germs of diseases emanating from sick rooms or from diseased persons working or visiting business houses. Sidewalks are the common receptacles of expectoration and are so used by many persons affected with infectious diseases, such as tuberculosis, influenza, sore throat, diphtheria, etc.

In order to accomplish the greatest good our efforts should be more particularly directed: First, to preventing the formation of street dust;

second, to the removal, by efficient methods and in a manner that will prevent the unnecessary dissemination, of such dust as may be unavoidably formed.

Solid city refuse can, by the use of modern methods of handling, be collected and reduced to grease and fertilizer without becoming objectionable to the community. The most sanitary way of disposing of garbage is to burn it. In a number of cities garbage is dumped in vacant lots, frequently within the corporate limits. This is very objectionable from a public health standpoint principally because it acts as a breeding place for flies, the fly being recognized today as one of the chief means by which typhoid fever and diarrheal diseases are communicated.

The two diseases just mentioned illustrate beautifully the necessity of sanitary care of refuse. "Wherever men congregate and live together without adequate provisions for the disposal of excrement, there and then typhoid fever will appear. And in the spread of both typhoid and diarrheal diseases it is proper to speak of the house-fly as one of the principle agents of infection."

The house-fly breeds in filth of all descriptions. Therefore the presence of flies indicates sins against sanitation. In the attempt at eradication of the diseases mentioned, complete extermination of the house-fly is not enough. For the disease may still be caused by polluted water, milk and other vehicles. The only consistent and logical thing to do is to attend to proper sewage disposal, in this way depriving the fly of an important breeding ground and rendering him a harmless nuisance instead of an infection carrier. Any attempt to make progress by the mere destruction of adult flies or by efforts to screen them from dwellings is, figuratively speaking, putting the cart before the horse.

No garbage, offal or decaying or fermenting refuse of any description should be allowed to remain on premises. All refuse boxes, both from the house and stable, if they cannot be abolished, can at least be made fly-tight. Their contents should be covered regularly with copperas or chloride of lime. These chemicals will keep down odors and prevent the development of maggots. Garbage cans should be kept tightly covered and, when emptied, thoroughly cleansed and sprinkled inside with kerosene to make sure that no larvæ are left alive. Where flies are being bred in neighboring places beyond one's control, they must be kept out of the house, so far as possible, by screened doors and windows. If, by chance, flies find their way into the living rooms, they should be destroyed without delay.

Sewage disposal as an item safeguarding public health is deserving of primary considerations; however, modern methods of handling sewage has made it practicable to collect, convey and dispose waste waters without necessarily causing any nuisance.

While it is a matter for health authorities and sanitary engineers, citizens should be alert to inquire regarding the sufficiency of the measures that are employed to protect them. There is little danger from defective plumbing, as formerly supposed. The main danger to a city is from pollution of its water supply in the outlying districts or from the accumulation of refuse, garbage or sewage in the streets, alleys and along the shores of waterways, allowing a direct means of contamination of polluted water or affording an opportunity for the house-fly to become a factor in spreading disease.

The general food supply should receive serious thought because of foods carrying disease germs. Flies crawl over fruits when exposed and unguarded by screens. Many people do not wash fruits before eating and this is a common source of human infection, particularly if a case of typhoid fever, diarrheal disease or tuberculosis near by is being carelessly handled. Also, if given an opportunity, the fly will carry the bacilli of typhoid from the excrement to exposed food in the kitchen or dining room. Again, they may feed on the waste of a sick room and on other filth and then visit neighboring homes, restaurants and groceries, crawling over milk and food which is subsequently eaten by human beings.

In this way they often spread abroad the serious diseases and cause the death each year of thousands of people, especially children.

The great secret of freedom from flies is cleanliness accompanied by screening of all openings of the home, especially of the kitchen and the dining room.

25 E. Washington St.

THE TREATMENT OF EXTRA-UTERINE PREGNANCY.

AIME PAUL HEINECK, M. D.,
CHICAGO.

Extra-uterine pregnancy is the condition which obtains in the female when a fertilized ovum is permanently arrested somewhere in its course from the ovary to the uterus and undergoes development at this point of arrest or abnormal lodging place. The term ectopic has a broader meaning than extra-uterine, and refers not only to tubal and to ovarian pregnancies, but also to those cases in which the fertilized ovum lodges and develops in some abnormal diverticulum of the uterus.

This condition, on account of its practical problems, appeals to all members of the medical profession. It occurs far more frequently than is generally believed. It is often overlooked, often misdiagnosed. Inflammation and sepsis following a supposed miscarriage are often due to a ruptured extra-uterine pregnancy. Countless women can be saved from chronic invalidism, and many from premature death, by recognizing this pathological entity in its early stages and by subjecting it to timely and adequate surgical intervention.

So continuously destructive is the action of the syncytial cells upon the tubal wall, that tubal pregnancy is compared by many clinicians to a parasitic growth, to a malignant process, requiring in every case to be treated as such. Extra-uterine pregnancy is like a mine ready to explode without a moment's notice. It is highly important that the patient be at all times within easy reach of competent surgical assistance.

Extra-uterine pregnancy almost invariably is primarily tubal; ovarian pregnancies occur, but they are pathological rarities. Tubal pregnancy occurs in all races and at all periods of the child-bearing age. It may be intra-mural, isthmic or ampullary; unilateral or bilateral. It does not seem to show any predilection for either tube. In sixty cases reported by Newell[1] the right tube was involved in thirty, the left in twenty-four. In the remaining six cases the pelvic relations were not clearly made out. It may be the individual's first conception, or precede, be associated with, or follow one or more normal uterine pregnancies. Mussey, in the *St. Paul Medical Journal* of 1914, reports a study of 168 cases occurring in the work of the Mayos. Of these cases sixty had never been previously pregnant. Normal uterine pregnancies have intervened between two extra-utrine pregnancies. Some cases have been preceded by one or more miscarriages, accidental or induced; many have occurred in primiparæ and multiparæ, after prolonged period of sterility and in a considerable number of cases one obtains history of previous inflammation, gonorrheal or other, of the internal genitalia. It is thought that inflammatory processes act as etiological factor by destroying the tubal cilia, and by producing kinks, strictures, adhesions and obliterations of the tube.

Every conceivable variation has been observed in cases of tubal pregnancy;[2] it has been repeated in the opposite tube, in the same tube, in a tubal stump. There has been simultaneous gestation in the right and left tubes and also simultaneous tubal and normal uterine pregnancies.[3] Under the designation "Tubal Twin Pregnancy," three distinct conditions are included:

1. Where one ovum is intra-uterine and the other extra-uterine.
2. Where each tube contains an ovum.
3. Where both ova are contained in one tube.

Tubal pregnancy at times simulates and in some of the reported cases was associated with one or more of the following pathological conditions:[4] ovarian cyst, salpingitis, pyosalpinx and hydrosalpinx of the opposite side, appendicitis, various forms of uterine displacement, and various uterine neoplasms.

What are the possible terminations of an extra-uterine pregnancy abandoned to the unassisted resources of Nature?

1. The pregnancy may go to term and a living child be delivered through channels created by the surgeon.[5] In connection with this termination, one must keep in mind that extra-uterine children frequently die in the first few days of life; many of them have lived only a few hours. They are frequently the subject of deformity. Potocki comments on the low cranial dimensions of his case. When two years old the child could not talk, and did not recognize anybody—not even his nurse. The operation necessitating their removal from the maternal organism may prove fatal to them. It may prove fatal to the mother, either immediately from surgical shock or from excessive hemorrhage; or remotely from toxemia,

septicemia or pyemia. The removal from the abdominal cavity of a living, full term extra-uterine child is one of the most difficult operations one can be called upon to perform.

2. The pregnancy may go to term and the child remaining undelivered dies and persists indefinitely in the maternal organism. It may at any time become a menace to the life and health of the mother.

3. The fetus may die previous to term.[6] Small embryos when expelled into the peritoneal cavity are promptly absorbed, unless the placenta retains a firm attachment to the tube or contracts new attachments. Fetuses that die at an advanced state of development cannot be absorbed.

The undelivered tubal fetus may undergo:

a. Putrefaction.

b. Mummification.[7]

c. Maceration.

d. Transformation into lithopedion.[8] "In 1880, patient missed a period and for six months had symptoms suggestive of ectopic pregnancy. Ever since 1880, symptoms of abdominal soreness and distress occurring at irregular intervals. In 1907, a laparotomy was performed and a lithopedion was found surrounded and attached to the omentum and intestine; no attachment to uterus, ovaries and tube."

e. Septic changes:

1. From communication with neighboring organs.

2. From contiguity with neighboring organs.

After the death of the fetus, the liquor amnii is absorbed. No more is secreted. The cyst shrinks and the gestation-sac may be considered as a cyst—a fetal cyst. The fetal cyst may be merely:

1. A mechanical inconvenience to the maternal organism.

2. An obstacle to a subsequent intra-uterine pregnancy, and have to be removed to allow a simultaneous or subsequent uterine pregnancy to go to term.

3. A source of irritation to one or more contiguous organs, causing rectal or vesical disturbances; by compressing the intestines, determining an ileus; by compressing the bladder or ureters, causing urinary retention.

4. A cause of uterine displacement.

5. A cause of diagnostic errors.

6. The fetal cyst walls may and frequently do become adherent to surrounding organs and tissues, and the cyst by means of a perforative inflammation opens into the (a) bladder; (b) vagina; (c) intestinal canal, or (d) through the abdominal wall, by either or by several of which channels of outlet it eventually incompletely eliminates its decomposing contents.

To recapitulate: The cyst may rupture:

1. Into the bowel by one or several openings.

2. Into the vagina.

3. Into the urinary bladder, and the fetal bones and other cyst contents be expelled per urethram. "Ten years after this extra-uterine gestation, patient began to feel that something was always obstructing the passage of the urethra and causing intense pain and discomfort. Small pieces of bone often discharged with the urine. The bladder was found to communicate with a sac containing a large number of fetal bones. The patient was placed under chloroform five times, only a few minutes each time, with an interval of six days between the sittings, and 68 bones were removed. Some still remained in the sac." Rai.[9]

4. Into the rectum and the fetal bones be expelled through the anal canal.

5. Into the uterus.

6. Into a cyst of other nature contained in the abdominal cavity.

7. Through the abdominal wall.

8. The fetal cyst may open and be eliminated through one, two or more channels in the same patient.

Rupture[10] is one of the terminations of tubal pregnancy. It is appalling in its suddenness and often overwhelming in its results. It may occur before or after the death of the fetus. Primary or secondary gestation sacs may rupture. The gestation may be arrested by this accident or may continue uninterrupted though changed in anatomical type. Rupture is associated with hemorrhage, circumscribed or diffuse, belonging to one of the three following types, or to a combination of two or of all these types: *a.* Extra-tubal; *b.* intra-tubal; *c.* intra-mural. If the amniotic sac be ruptured and there be an outflow of the amniotic fluid, gestation will come to an end.

Extra-tubal rupture takes place:

a. Into the peritoneal cavity; if the ovum

does not perish, the pregnancy is continued as a tubo-peritoneal or peritoneal pregnancy.

b. Between the folds of the broad ligament. If the gestation be not interrupted, it will continue as an intra-ligamentary or tubo-abdominal pregnancy. Intra-ligamentary pregnancy is far more infrequent than peritoneal pregnancy. The layers of the broad ligament provide a ready-made capsule by means of which the amount of bleeding is restricted.

c. An intra-mural rupture may lead secondarily to an intra-tubal or extra-tubal rupture. In intra-mural rupture, a thin layer of muscle tissue and the peritoneum separate the blood-sac from the peritoneal cavity, or from the intra-ligamentary space. The condition is somewhat analogous to that which obtains when a saccular aneurysm ruptures and the blood escapes interstitially. If the abdominal opening of the tube be occluded, intra-tubal rupture leads to an accumulation of blood in the cavity of the tube, viz: hematosalpinx. If the abdominal end of the tube be not occluded, the blood passes out of the tube into the peritoneal cavity, giving us a pelvic hematocele or a hemoperitoneum. The ovum, continuing to develop in the tube, may rupture secondarily either into the peritoneal cavity or between the folds of the broad ligament, and gestation therein continue. If one variety of rupture fails to relieve the tension, the gestation-sac ruptures in another direction. In tubal abortion the ovum is carried out of the tube by the intra-tubal hemorrhage.

The hemorrhage that attends and follows rupture usually requires immediate surgical interference.

Tubal ruptures and tubal abortions are associated with hemorrhage. Hemorrhage may also result from perforation of the tubal wall by the development of the chorionic villi. The amount of blood discharged bears no relation to the extent of the rupture. Severe and even fatal hemorrhages have occurred from very small orifices. The rupture may be punctiform in size; may be a large tear; may be almost a complete rending of the tube. Rupture into the peritoneal cavity leads either to the formation of an hematocele, or to a flooding of the peritoneal cavity; the latter will prove fatal if the hemorrhage be not operatively arrested. Maternal death may be caused by one severe intraperitoneal hemorrhage, or by recurring hemorrhages. The signs and symptoms of acute anemia are quickly produced.

If the extra-tubal rupture be between the folds of the broad ligament, a pelvic hematoma will result. This hematoma is almost invariably one-sided and, needless to say, is on the side of the rupture. In some cases it dissects forward between the uterus and bladder, or backward around the uterus beneath the peritoneum and extends to the opposite side. If tension within the hematoma is excessive, rupture may take place secondarily into the peritoneal cavity, giving us the combined condition of both intra-peritoneal and extra-peritoneal hemorrhages. The same may occur in a hematosalpinx. Excessive tension leads to tubal rupture either into the peritoneal cavity, or between the folds of the broad ligament, or in both directions. The hemorrhage associated with the rupture of a tubal or an ovarian gestation-sac either proves fatal, or a pelvic hematoma or a pelvic hematocele results. These encysted blood collections—hematomata or hematoceles—are partially or completely absorbed, persist as fibrous bands or masses, or become infected and lead to pus formation. If the suppurative inflammation be circumscribed, an abscess is formed. Should the inflammation spread to, or the abscess burst into the peritoneal cavity, there results a circumscribed or diffuse suppurative peritonitis. Should the inflammation extend to the retro-peritoneal connective tissue, a cellulitis results, with all its accompanying dangers. The expulsion of the uterine decidua does not imply the death of the extra-uterine fetus.

The migration of the ovum into the abdominal cavity, through the ostium abdominale, is known as tubal abortion (Bland Sutton). Tubal abortion may also lead to hematosalpinx. Usually, however, the blood escapes freely through the ostium abdominale into the cul-de-sac of Douglas, and either becomes encysted there, or escapes into the general peritoneal cavity. The three factors involved in causing abortion or rupture apart from such extraneous causes as bi-manual examination, etc., are:

1. The destructive action of the trophoblasts.
2. Bleeding.
3. Contraction of the muscular wall of the tube.

One should always be very careful and gentle

in examining a case of probable tubal pregnancy; the danger of rupturing one of these tubes by rough manipulation exists.[11]

Tubal abortion may be complete or incomplete. In the former there is usually one attack of pain and weakness. In the incomplete form, we have repeated attacks of weakness. The abortion, if the amniotic sac remains intact, and if the ovum resists absorption, leads to a tubo-peritoneal or peritoneal pregnancy. If the villi or placental attachments are destroyed, the ovum, being unable to form secondary attachments to other structures, dies.

Treatment.—Extra-uterine pregnancy is as truly a surgical disease as appendicitis, and though, as in this disease, a clinical cure may at times be obtained by non-operative measures, it is not common for that clinical cure to be an anatomical cure. In ectopic pregnancy do not consider the viability of the child except as it endangers the life of the mother. We must destroy the fetus to save the mother. Without surgical aid extra-uterine pregnancy always terminates fatally to the child, and frequently causes the mother's death.

Nature's tedious methods of relief, and the many dangers to which the woman is obviously exposed during its occurrence, justify surgical interference. Even the absorption of large uninfected collections of blood is far more prolonged than post-operative convalescence. The ideal time for operating is before rupture takes place. Error should be made upon the side of prompt operation rather than on that of undue waiting.

In the hands of the average operator, the only possible dangers to which the mother is exposed by the operative removal of the dead or live ectopic fetus are sepsis, hemorrhage and shock. The first can be avoided, the second can be completely controlled, and the third can be minimized and almost always overcome.

Some operators make use of the terms "primary laparotomy" and "secondary laparotomy." In the former, the operation is performed during the life of the fetus. It is in accord with the theory and practice of modern surgery. It attacks tissues while they are healthy, in preference to awaiting Nature's blind efforts to improve conditions. Secondary laparotomy is the operation performed after the death of the fetus.

The diagnosis of ectopic gestation is in itself an imperative indication for operation. Delay is inadmissible. The longer one waits, the more dangerous the condition becomes. A waiting policy is often fatal. Lives can be saved by accurate diagnosis, prompt decision, and skillful operating. The profession in general has not exhibited that keenness and alertness toward extra-uterine pregnancy which has characterized its study of appendicitis in the last few years.

In tubal rupture and in tubal abortion the first indication is to stop the hemorrhage. This indication is urgent. Hypodermic medication will not accomplish it. To stop this hemorrhage, place not your faith upon the coagulability of the blood, the lessened force of cardiac action, or such agents as heat, cold, styptics, and the like. Stimulants must not be used in internal hemorrhage until the bleeding vessels have been secured, as increase of cardiac and arterial tension would be followed by recurrence of bleeding. Open the abdomen; stop the hemorrhage by ligating bleeding points with aseptic absorbable ligature material, if you have it at hand, with antiseptic non-absorbable ligature material, if the former be not at hand.

Even in the absence of urgent symptoms, do not delay operation. To postpone operation is to incur adhesions and hematocele sacs in their various forms. As long as the embryo or fetus lives, the placenta increases daily in size, in vascularity, and in difficulty of removal. Furthermore, every day, the increasing size of the child and of the placenta adds to the danger of secondary rupture.

Having decided to operate, two pathways are open: 1. Through the vaginal wall. 2. Through the abdominal wall. In some difficult cases you may have to use both the abdominal and the vaginal route. We recommend the vaginal route in the following conditions; viz., pelvic abscess—when the gestation-sac has been converted into a pelvic abscess, when suppuration has occurred in an intra-ligamentary fetal cyst, and in all intra-ligamentary hematomata. The opening of pelvic abscesses by way of the vagina is a safe and wise surgical procedure. The results are almost always very satisfactory. 3. In those cases where the fetal parts closely press against the vaginal wall. Even here it may be necessary to make use of the abdominal route, in addition to the vaginal route. It is often impossible to remove the impregnated

tube through a vaginal incision. There is always greater danger of wounding the intestines when one makes use of the vaginal route. We prefer the abdominal route, because it enables the operator: 1. To remedy at the same time coexisting pathological conditions, hydrosalpinx, obliteration of the abdominal ostium of the unaffected tube, ovarian cysts, etc. 2. To more thoroughly and more rapidly arrest hemorrhage. 3. To make a more direct examination and thereby to judge better the extent of damage, and formulate a more accurate diagnosis, and effect a more conservative ablation of organs. 4. To have the operative field under much better control, to more quickly come in contact with the condition, and to better and more completely remove the fetal sac and its contents. The separated ovum or liberated fetus may ascend in the abdominal cavity, and it may be very difficult to find and remove it by the vaginal route. An abdominal incision enables the operator, in case of an incorrect diagnosis, to treat those conditions that simulate ectopic gestation. In operating sight, as well as touch, is a very useful aid.

The greatest difficulty that we encounter near term, at term, or after term in operating for ectopic gestation is connected with the removal of the placenta. A slight detachment of the placenta often results in alarming hemorrhage.

We make use of a supra-pubic or infra-umbilical incision about one-half-inch to one side of the median line, so the edges of the resulting wound are better adapted to our method of suturing the abdominal wall. Avoid cutting the epigastric vessels. Avoid cutting the urachus. Cutting into a patulous urachus is as significant as cutting into a urinary bladder. The cut must be repaired. Make timely and appropriate use of the Trendelenburg position. The patient must be placed in this position gradually, not suddenly. The return to the horizontal posture must also be gradual. The Trendelenburg position facilitates the gravitation of the intestines toward the diaphragm. It permits a better view of the pelvic tissues or organs. After the patient has been gradually placed in the Trendelenburg position, the intestines and the general peritoneal cavity are walled off from the pelvic cavity by gauze pads.

In all operations for extra-uterine gestation, the opposite tube and ovary should be carefully examined, as they may be the seat of degenerative changes. In a few instances the condition is bilateral. Extra-uterine pregnancy in some individuals has recurred.

Never make a needless sacrifice of tissues or organs. In the absence of a positive indication, such as a highly contracted pelvis, preventing the birth of a living child through the natural channels, etc., never remove the non-diseased tube and ovary. As most extra-uterine pregnancies are tubal, early operation will permit the preservation of the ovary. The preservation of the ovaries is of benefit to the patient.

The main difficulty in early and late operations is hemorrhage. The ideal treatment for hemorrhage incident to operations undertaken for the removal of an ectopic gestation-sac is prophylaxis. Therefore, do not provoke uncontrollable hemorrhages. Proceed after having well sized up the situation. Hemorrhage must be controlled by ligation or by compression of the bleeding points. Normal salt solution must not be given, either intravenously, subcutaneously, or per rectum, before the bleeding points have been controlled or secured. Once the bleeding is under control its use is of signal benefit. It increases the volume of the circulating fluid. Do not close up the abdomen until you are satisfied concerning the hemostasis. Hemorrhage is most profuse if the fetus be alive at time of operation.

If possible, do not leave denuded peritoneal surfaces. They are possible avenues of infection. After ablation of one or both tubes, suture the folds of the broad ligament to each other from the superior pelvic strait to the angle of the uterus. Peritonization—that is, the covering with peritoneum of all denuded surfaces—lessens adhesion formation. These adhesions may be attended with colicky and other pains; may cause intestinal obstruction. This peritonization lessens hemorrhage and creates a barrier capable of limiting the extension of inflammatory processes.

In attempting to remove the fetal sac and its contents, be careful lest these efforts inflict much damage upon contiguous organs. Repair such damage, if feasible, before closing up the abdominal cavity.

In early, unruptured, tubal pregnancy, there are usually no adhesions. If adhesions be present they are to be separated, as in all other intra-

abdominal surgical interventions, with great care and by the same methods. The incision, about three inches in length, is carried through the different layers of the abdominal wall into the peritoneal cavity. The first step is to locate the uterus. Using the fundus of the uterus as a guide, and proceeding to the right and to the left, examine both tubes and both ovaries. Tubal pregnancy is located with about as equal frequency on one side as on the other. Separate all adhesions, if such exist, of the gestation-sac to contiguous organs. Then remove the gestation-sac (which is usually tubal), as a whole, if possible, by total resection of the Fallopian tube involved.[12] Suture the folds of the broad ligament together; leave no denuded peritoneal surfaces. Close up the peritoneal cavity. Post-operative treatment is that of uncomplicated laparotomy. If the pregnancy be ovarian in type, and be early and unruptured, do a typical ovariotomy. Accuracy and rapidity in operating is as essential in these cases as in any other intra-abdominal work.

If the gestation-sac is ruptured and hemorrhage has occurred or is occurring, after opening the abdominal cavity immediately locate and keep in view the fundus of the uterus. Determine on which side is the ruptured gestation-sac. Seize the uterus, preferably with the hand or with a double tenaculum. It is a most important landmark. Having determined on which side the rupture is (it is usually tubal), apply a clamp at the uterine end of the tube. This will stop all further hemorrhage from the ovarian artery of that side. Apply another clamp immediately below the tube, compressing the folds of the broad ligament, but not injuring the ovary. Then remove the affected tube and the gestation-sac. Ligate all bleeding points, suture the folds of the broad ligament and the tubal surface of the uterine stump. Remove as expeditiously as you can the easily removable liquid blood and blood clots contained in the peritoneal and pelvic cavities. Remove the embryo if it can be found without prolonged search. Let there be no needless exposure, no needless traumatizing of the intestines. Mechanical, chemical and thermal irritation of the peritoneum intensify operative shock, and may be followed by the aperistaltic form of ileus. Post-operative treatment is that of acute internal hemorrhage for which a laparotomy has been performed. Use normal saline solution *secundum artem*.

The most dangerous operative conditions, from the maternal standpoint, are presented by those in which the fetus is alive. In these cases the hemorrhage frequently is appalling. Some authors have suggested that the abdominal aorta be compressed. When the placenta is attached to the line of incision, the hemorrhage is profuse; it is checked by firm compression. In those cases in which the fetus is alive, we have two things to accomplish, and they must be accomplished with the preservation of the mother's life. The first thing to accomplish is the removal of a living child. The last and most important is the removal of the ovular debris—placenta, membranes, etc. One is not often called upon to operate on cases in which a living child is present. For a physician knowingly to abstain from operating in a case of extra-uterine pregnancy before it reaches term is, to say the least, injudicious. The best practice is to terminate these pregnancies early, before the development of the ovum is much advanced.

Remove the fetus without disturbing the placenta. If the fetus is alive, after having opened the abdominal cavity and protected the peritoneal cavity by compresses from the outflow of amniotic fluid, ligate the umbilical cord as in a normal pregnancy and remove the fetus. Have the amniotic fluid escape externally as much as possible. Upon the maternal end of the umbilical cord a clamp is placed, the umbilical cord being cut either between the ligature and the clamp or between the two clamps.

If the fetus has reached term or near term and is dead, there is some difference of opinion as to which operation is the preferable method—the immediate operation or the delayed operation—until the fetus has been dead for a month or longer. Our experience leads us to believe that the danger incident to the policy of expectancy is so great that if the fetus is dead, be that death recent or of some standing, it should be removed without delay. Exceptionally, our incision may carry us into the fetal sac. This occurs in some extra-peritoneal or broad ligament pregnancies and the peritoneal cavity is not opened. In this variety the sac and placenta are entirely beneath the peritoneum. The latter may have been pushed up, stripped, as it were, from the anterior abdominal wall for a greater or less distance. Without disturbing the placenta, after having ligated the umbilical cord near the placenta

hastily remove the fetus. Evacuate the sac contents and then after separating the sac and the placenta from the surrounding structures to which they have become adherent, remove them. Usually our incision carries us into the peritoneal cavity. After placing the patient in the Trendelenburg position, separate the sac from the contiguous viscus or viscera to which it adheres. Control hemorrhage as you proceed. Operate rapidly. The general peritoneal cavity is protected by gauze compresses, which are numbered and counted, and then the incision is carried into the ovum. Occasionally, you may be able to remove the ovum as a whole. If the placenta is not safely removable, if the nature of the adhesions of the surrounding organs to the ovum is such that their separation would prove disastrous, content yourself with evacuating the fetal cyst and then suturing its walls to the abdominal wound. The sac must be packed daily until the placenta has been expelled and the sac cavity obliterated. If the placenta is to be left behind, it is better that it be not disturbed.

The following methods have been employed:

1. The fetus, the umbilical cord, and the amniotic fluid have been removed. Everything else has been left in situ and the abdominal wall closed. This is an extremely risky experiment.

2. The fetus is removed, and more or less of the sac is resected. Drainage of the sac cavity is employed, and the placenta and sac are left for spontaneous expulsion. This is the most frequently employed procedure.

3. After the removal of the fetus, umbilical cord and amniotic fluid, the placenta is removed in part—so much of it as is easily separated—and the remainder is left to spontaneous absorption.

4. The placenta is left in situ after removing the fetus. Then, after the expiration of a certain time, when it is hoped that the blood supply is spontaneously cut off, the placenta is shelled out.

5. The placenta and entire ovum are removal immediately. Ideal measure, if feasible.[13]

6. The placenta and gestation-sac are removed at once, likewise the neighboring organs, the uterus and ovaries, providing the hemorrhage cannot otherwise be arrested.[14]

7. Preliminary ligature of the uterine and ovarian arteries of the side from which the placenta received its blood supply, followed by removal of the placenta.

8. In some cases, the hemorrhage from the placental side was best controlled by inverting that part of the intestinal wall to which the placenta was attached. In other cases, the operators found it necessary to do a supra-vaginal hysterectomy and unilateral or bilateral ablation of the uterine appendages.

There is no disputing the fact that the fetal sac and placenta should be removed completely if the procedure be consistent with the safety of the mother. The complete ablation of the ovum is theoretically the only perfect operation.

The method we employ in those cases in which we fear to disturb the placenta is the following: After incising the sac, removing the fetus and other intra-ovulary contents, and ligating the umbilical cord close to its implantation, we resect a portion of the sac wall and sew what is left to the abdominal wound, thus closing off the general peritoneal cavity. This leaves a large pouch, which is packed with strips of aseptic gauze. Endeavor to keep this sac cavity aseptic until all the placenta has sloughed out of the wound. The elimination of the placenta by this method takes from twenty to fifty days.

In some cases a vaginal drain has to be used, in addition to the abdominal drains. The first strips of gauze that are inserted in the fetal sac are made to serve the offices of a compress and of a tampon. They are used to check the bleeding. After the first dressings, the gauze strips are used more with drainage in view. After the fetal cyst has been sewed to the abdominal wall, or immediately previous, according to the exigencies of the case, the compresses that have been used to protect the general peritoneal cavity are removed. Sewing of the sac wall to the abdominal wound shuts off all communication between the cyst and the peritoneal cavity. We use No. 3 catgut to suture the sac wall to the abdominal wall. The abdominal wound is closed as in those cases in which a Mikulicz drain is employed. Post-operative treatment, symptomatic.

BIBLIOGRAPHY.

1. Newell, F. S.: Sixty Cases of Extra-Uterine Pregnancy, Boston City Hospital Report, 1905, p. 96, 16th series.
2. Kynoch, John A.: On Repeated Extra-Uterine Pregnancy, With Note of Two Cases. Journal of Obstetrics & Gynecology of the British Empire, 1906, vol. 10, p. 576.
3. Vineberg, Hiram N.: Simultaneous Uterine and Extra-Uterine Pregnancy. Report of Two Cases. New York Medical Journal, 1906, vol. 83, p. 296.
4. Horrmann, Albert: Uber Extra-Uterine-Gravidität. Zentralblatt für Gynäkologie, 1907, vol. 31-1, p. 487.

5. Potocki, M.: Grossesse extra-uterine á terme avec enfant vivant. Revue de Gynecologie et de Chirurgie Abdominale, Paris, 1905, vol. 12, p. 362.
6. Brickner, Samuel M.: An Analytical and Clinical Study of Thirty Cases of Ectopic Pregnancy. The Medical News, 1905, vol. 87, p. 289.
7. Burford, George: On the Principal Features of Extra-Uterine Gestation, With Especial Reference to Three Uncommon Cases. British Homeopathic Review, 1907, vol. 1 (new series), p. 391.
8. Morehouse, H. W., and Griswold, E. H: Lithopedion Carried Twenty-six Years or More. Jour. American Med. Assn, 1907, vol. 48, p. 222.
9. Rai, Captain A. G.: Extra-Uterine Fetation. British Medical Journal, 1906, vol. 2, p. 428.
10. Emil Haim and Oskar Lederer: Erfahrungen über rupturierte Extrauterinschwargerschaft mit freiem Bluterguss in die Bauchhöhle. Monatsschrift für Geburtshülfe und Gynakologie, 1907, vol. 25-1, p. 207.
11. Galabin: Tubal Abortion Produced by Bimanual Examination; Obstetrical Transactions. Obstetrical Society of London, 1905, vol. 47, p. 332.
12. Bovee, J. Wesley: Report of a Case of Unruptured Tubal Pregnancy of Four Months' Development. Virginia Medical Semi-Monthly, 1905-06, vol. X, p. 389.
13. Noble, Charles P.: Extra-Uterine Pregnancy. Pennsylvania Medical Jour, 1905-06, vol. 9, p. 833.
14. Yeager, Frank N.: A Case of Ectopic Gestation at Full Term With Fetus Carried in Abdomen for Thirty-five Years. Jour. of American Med. Assn., 1912, vol. 59, p. 448.

RECOGNITION AND TREATMENT OF ECTOPIC GESTATION.*

E. E. MONTGOMERY, M. D., LL.D., F.A.C.S.
Professor Gynecology, Jefferson Medical College.
PHILADELPHIA, PA.

Eight years ago I read a paper before the American Gynecological Society at its meeting in Philadelphia, in which I quoted from Dr. Charles D. Meigs, writing in 1848, which quotation I will venture to repeat at this time. He described a patient suffering from symptoms which he said, without doubt, led to the diagnosis of rupture tube-sac of pregnancy, and asserted that such a diagnosis "would not lead to any helpful therapeutic or chirurgical intervention, for nothing is to be done in these melancholy cases beyond the adoption of mere palliative measures." Again in his work on "Females and Their Diseases," he exclaims, "What, alas, can we do in these cases? We could make an incision in the abdomen and clear away the coagulum and serum, but who is bold enough to do so? Who is astute enough to discriminate between all the possible causes of such phenomena with so much clearness as to warrant him in the performance of a gastrotomy for Fallopian pregnancy? There is no such wise and bold surgeon; and therefore, nothing remains for us but to extend all the relief within the narrow boundaries of our power and calmly await and submit to the inevitable end." Is it surprising that under such hopeless circumstances, he says, "A physician may be calm and even cheerful, but a merry doctor is a very singular phenomenon."

I am glad, however, that I can come to you with a more hopeful message. The discovery and practice of asepsis has enabled us to explore and make accessible regions that were formerly "terra incognita." In presenting this subject I have taken the liberty of including under it abortion in a tubal pregnancy; the extrusion of the fetus in its envelop from the abdominal end of the Fallopian tube. In either case there is rupture of the relations of the developing ovum with the maternal structures. I would further include under this subject those cases in which the tubal wall becomes thinner, and finally perforated by the growth of villi: no rupture occurs, yet as profuse hemorrhage follows as in rupture.

In the great majority of cases of ectopic gestation, the fecundated ovum develops within some part of the tube. The obstacle which has led to its occurrence may permit it to progress only to the outer portion of the tube; its voyage may have carried it to the central portion, or even to the uterine end. The development of the misplaced ovum results in distention and gradual thinning of the tubal wall. The result of this encroachment depends somewhat upon the situation; if in the outer portion of the tube, the ovary and structures adjacent may serve to form a part of the sac wall, leading to agglutination and the formation of an adventitious wall. The gestation sac thus comes in intimate association with the ovary, coils of intestine, side of the uterus or any structure which may have been in close enough association with the tubal end. After a time, however, its growth leads to its extrusion from the tubal wall and terminates in what is known as a tubal abortion. Gestation occurring in either the central or uterine portion of the tube develops until the wall becomes so thinned and stretched that a rupture occurs. This rupture may be a mere break in the tissue. The break does not necessarily lead to extrusion of the ovum, for the surfaces may be plastered up and the ovum continue to develop until another rupture, partial or complete, occurs when it may be extruded from the sac. Rupture in the great majority of cases takes place on or before the eighth week. A rèsumé of an article in *The International Abstract of Surgery*, 1914, Kastanajeff reported 717 cases of ectopic gestation in a hospital in Petro-

*Read before the Chicago Medical Society, March 1, 1916.

grad, of which nearly 600 ruptured before the end of the eighth week. Every obstetrician and gynecologist of large experience has seen numbers of cases in which the gestation has terminated in rupture in from three to five weeks. It is the exception rather than the rule for the patient to go a longer period without its occurrence. Such cases are so frequently overlooked and attributed to other causes that it seemed to me a proper subject to bring before your Society.

Much stress is laid upon the one-child sterility, in the fact that a woman goes for years without the occurrence of pregnancy, then misses one or two periods and is taken with violent pain with symptoms of internal hemorrhage and the evident termination of an ectopic pregnancy, but such characteristic conditions are not always present.

Mussey, in *The St. Paul Medical Journal* of 1914, reports a study of 168 cases occurring in the work of the Mayos. Of these cases sixty had never been previously pregnant. Pregnancy in the tube may occur in the first conception, may follow a recent abortion or parturition at full term, or it may occur in a woman who has not given birth to children in a number of years. As I have indicated the symptoms may occur in a patient who has not missed a period, who does not even realize she is pregnant. The occurrence of pain and discomfort in the abdomen may be not infrequently attributed to something she has eaten,—and what patient, if she thinks of it has not eaten something? The appearance of a show of blood may lead her to believe that it is the premature appearance of her next menstrual period. Even where a period has been passed and the woman believes herself pregnant, the inconvenience and uncomfortable abdominal phenomena and the association of a bloody discharge may seem to indicate that she has not been as careful as she should have been, consequently it is not surprising that both patient and physician are often mislead and the actual condition overlooked.

It is important where possible that ectopic gestation should be recognized prior to the occurrence of rupture, but experience discloses that such diagnosis is comparatively infrequent. As development of the ovum in the tube progresses the patient experiences colic-like pains and discomfort, more particularly marked on the side of the abdomen affected. The uneasiness and the continued recurrence of such attacks should lead the patient to consult her physician, and a physician so consulted should not take it for granted that it is due to the contraction of the developing uterus, to disturbance of the digestive tract, to constipation of the bowels, but subject the patient to a careful investigation. The existence or non-existence of previous pregnancy, the history of definite conditions which should cause tubal changes, the presence of fibroid growths or other changes that may cause a tubal pregnancy should all be considered a part of the investigation. Such an investigation should first lead to careful palpation of the uterus to determine any changes within it. Examination of each tube should be most carefully and prudently made, as compression of such a development between the fingers within the vagina and the hand over the abdomen may rupture the sac. The recognition of an enlarged tube on the side in which the discomfort is experienced, the greater pulsation in the uterine artery on that side should justify the suspicion of ectopic gestation. I cannot, however, too earnestly protest against forcible palpation in such cases as I have seen one, and known of other cases, in which fatal hemorrhage resulted from rupture due to such an examination. The termination of tubal pregnancy, either by rupture or tubal abortion, should be suspected where a woman has passed one or two periods, has suspected she was pregnant, has general digestive or nervous symptoms, has felt more or less discomfort in one or the other side of the pelvis, has been taken with sudden, severe, lancinating pain which has rendered her unconscious or caused her to drop in a faint, when her pulse becomes feeble, even absent at the wrist, her skin blanched and covered with perspiration, she is unable to raise her head without the sensation of fainting, possibly remaining unconscious. Such symptoms, even though the patient has not missed a period should lead to the suspicion of internal hemorrhage of which ectopic gestation is with extremely rare exceptions the cause. Such a condition would seem to the majority of men to have but one explanation for such a group of symptoms, but instances occur over and over again where a physician is called in and upon making investigation is told the patient has eaten a few peanuts, or something out of the ordinary, and at

once concludes it is a case of acute indigestion, and proceeds to treat her accordingly. He may ascribe the phenomena to shock or a heart lesion, and proceeds to administer stimulants with a view to her recovery. Not infrequently such an attack occurring on the right side is attributed to appendicitis, to renal calculi impacted in the ureter, or to gall-bladder colic. In the diagnosis it is important that the physician concerned should carefully weigh the subjective as well as the objective symptoms. The appearance of the patient, the profound shock, the weak or imperceptible pulse and the combined symptoms should justify the suspicion of internal hemorrhage. Nothing can be determined by bimanual palpation. Fluid blood in the abdominal cavity is not palpable; indeed severe manipulation with a view to determining the condition is detrimental, in that it may force out a clot upon which we must depend to close a bleeding vessel. It is true a woman may fall in a faint from severe shock, fright, or very severe pain and distress in the abdomen, but the pain occurring from appendicitis, impacted calculi in the ureter or gall-stones is more gradual in its onset, and while attended with severe pain it is rarely the patient becomes unconscious, but is more likely to be crying out with the agony and distress.

The effect of the termination of pregnancy, whether in rupture, tubal abortion or in perforation of the tubal wall by the villi, varies greatly in different cases. The perforations by the villi, although of small size, may lead to dangerous hemorrhage and require active measures for its relief. It is not attended with the severe pain incident to rupture, but the anemia is insidious and progressive. The patient develops a progressive anemia, becomes feeble and shows symptoms of faintness and soon more or less abdominal tenderness from the irritation of the blood on the peritoneum.

In tubal abortion the pain is less marked than in rupture of the tube, but the hemorrhage may be much greater and consequently the constitutional condition more marked. The prostration in these cases may be very marked and the disorder the more obscure because of its being frequently associated with but little pain. The bleeding may have preceded the abortion by a bloody discharge from the uterus, and this may continue for days subsequently. The hemorrhage ceases through the clotting of blood in the tubal cavity previously occupied by the embryonic sac, completely filling it. When opening of the abdomen is deferred for some days the tube will be found filled with a firm clot. It can be felt through a thin abdomen as a distinct tumor or sac.

Rupture of the tubal wall is always attended with severe agonizing pain, but the amount of bleeding varies greatly according to the seat of the break, and the relation of the vessels to the placental formation. In some instances the bleeding is very slight and the shock not marked. The patient may have thought that she was having or had had an abortion in which she is confirmed by the discharge from the uterus which may consist of clots and shreds of membrane attended with cramping sensations. The length of time the flow continues finally drives her to consult her physician, and the vagueness of her symptoms may induce him to think her suspicion of an abortion is correct, and if he is imbued with the idea that all such cases should be curetted, proceeds to that measure and never realizes what the condition was.

Rupture of the uterine end of the tube is much more likely to be attended with severe hemorrhage. The pain, profound shock, a continuous bloody discharge from the vagina, in a woman who had thought herself pregnant, especially when the faintness and weakness of the patient is out of all proportion to the depression incident to the discharge from the vagina, should lead to the diagnosis of internal hemorrhage. When we see how the abdominal end of the tube becomes distended until the ovum is separated from it through its increase in size, it is quite within the realm of imagination to think that the ovum, which lodges at the extrauterine end of the tube may likewise dilate it, and abort from it into the uterine cavity where it may terminate by expulsion into the vagina, thus justifying the suspicion that the patient has aborted, or it may be retained and complete the gestation within the organ.

The sudden and insidious onset, the profound depression and often great danger attending the termination of an ectopic gestation makes its study and prompt recognition of the greatest importance. A woman walking the street, or about her house attending to her duties or enjoying herself among her friends, without any suspicion on

their part that she is otherwise than what she seems, is taken with severe pain and with an agonizing cry falls in a faint, may be aroused to pass into another, and be a corpse in from one-half hour to four or five hours. The majority of physicians called to a patient so suffering will feel that she needs stimulation, and will proceed to give strychnin, atropin or digitalin hypodermically. He may resort to salt solution by the rectum, through hypodermocleisis, or if unfortunate in having at hand the apparatus, may proceed to intravenous injection of salt solution. Stimulation is not what is needed. The only hope for such a patient outside of securing the bleeding vessel, is that she may grow so weak that a clot shall form in the vessel and become so firmly fixed before she rallies, that it shall continue to block it. Anything then, that serves to increase the blood-pressure is againts her interests in that it threatens to drive out the loosely attached clot and renew the bleeding. While I feel in duty bound to urge with all my energy the danger of these severe cases, I am obliged to admit that they are exceptional, that in the great majority the gestation sac ruptures with the escape of a not dangerous quantity of blood and recovery follows without operative interference; probably without the true character of the condition having been recognized.

The knowledge that many cases recover, and that even those profoundly shocked may rally and recover without resort to surgery has led both attending physicians and those consulted to procrastinate, and sometimes lose patients that might otherwise have been spared. Indeed, the *surgeons* are found divided into two schools; those who would operate in all cases at once, and those who would wait for the patient to rally from the shock, and even wait to see whether she cannot dispose of the effused blood, and operate only as a last resort.

The treatment of the patient may well be considered from the condition and environment under (1) when seen immediately after rupture; (2) when in collapse, and (3) when in hospital with proper environment.

1. A patient seen at her home in profound shock, possibly unconscious, with feeble flickering pulse, and the history indicating the possibility of internal hemorrhage should be kept quiet, be given a hypodermic injection of morphin and preserved from the indiscreet efforts of her friends. Preparations should be made at once to open the abdomen and secure the bleeding vessel, and if the environment of the patient is unfavorable for such a procedure, or the physician knows himself incompetent to ensure her skill and aseptic surgical treatment, he should lose no time in getting her where she can obtain it. The operation should not be done unless it can be done properly and with thorough asepsis, for the loss of blood incident to the condition causes such patients to have very low resistance and consequently it is better that they risk death from hemorrhage, rather than undergo an operation which is almost certain to be followed by sepsis with low resistance.

2. The patient in profound shock, the pulse feeble or imperceptible at the wrist; what shall be our course of treatment? Many advise that the operator wait for the patient to rally before resort to surgery—and refer to the surgeon who waits to restore his patient before amputating a crushed or injured leg. In the latter, the patient is ensured against hemorrhage by the application of a tourniquet, while in the ectopic woman the vessel is open to resume bleeding with the increase of blood pressure as she revives. There is no surety that the hemorrhage will not persist and make the chance of recovery slight. One advocate of delay doubts death from hemorrhage, and asserts that its improbability is indicated by the fact that the ovarian arteries in bitches can be cut and the blood will coagulate as the heart power fails, and the dog recover. Any of us, however, who have had the misfortune to lose a patient through the slipping of a ligature are inclined to doubt the similarity of the coagulation in the canine and human females. Experience has demonstrated and coroners' records of our large cities show that hemorrhage following rupture in ectopic gestation claims its toll of victims every year. I hear someone ask, "Would you proceed to operate on a patient who seemed about to expire from shock?" I certainly would feel that where there was life there was hope, and the patient's chance would be enhanced by combating the possibility of further hemorrhage.

While the preparations were being made for the operation, or if they had been made, I would open a vein and begin intravenous injection of a 1 p.c. salt solution to which had been added a dram of

adrenal solution (1-1000), and let this be continued during the operation and subsequently until between one and two pints had been administered. The operation would consist in hurriedly opening the abdomen, discovery and ligation of the bleeding vessel, which may or may not include the removal of the sac according to its size and situation. If small and situated in the cornu of the uterus, it might be sufficient to secure the hemorrhage and ignore the sac. No time should be lost in the attempt to rid the abdomen of fluid blood. Large clots may be turned out and the abdomen closed. The patient is placed in bed and if she has not had morphin enough is given sufficient to ensure her against disturbance by her condition or what goes on about her. The Murphy drip should be instituted and continued until her vessels are distended.

3. What shall be the course of treatment in a patient who has evidently had a rupture, but whose condition makes it evident she is in no danger of a fatal termination from hemorrhage? The occurrence of hemorrhage should require opening the abdomen, but the operation need not be so urgent, and if desired, a time may be selected at the convenience of those having her in charge. A collection of blood within the abdomen may become infected from conditions previously existing in the pelvis, or through its contact with coils of intestine from microorganisms passing through the walls. Even where absorption occurs, it is slow, a serious tax upon the energy of a patient with lowered vitality and causes adhesions and thickening of the peritoneum, with displacement of the uterus and other pelvic viscera.

It has been suggested that the disorder which produces ectopic gestation in one tube is likely to exist in the other one, and result in its recurrence should the tube remain, and hence to preserve the patient from a repetition of her peril the second tube should be removed. The fact that patients occasionally do return because of a second ectopic would seem a justification of this advice. Oden (*Journal Michigan State Medical Society*, 1915, XVI, 104) reports a second operation for ectopic gestation five months after the first. I have seen recurrence in two patients necessitating a second operation. On the contrary I have seen a number of patients who have undergone an operation for ectopic gestation who have subsequently given birth to children.

Case 1. The following case is an instructive one: Mrs. G. A., aged 33 years, recently married, having missed a menstrual period was seen with the late Dr. Sibbald on the evening of August 11, 1911. Shortly after 10 o'clock that morning she had been standing before her mirror making preparations for a trip to the city, when, without warning, she was taken with severe pain in the right side and fell in a faint. A physician was called, who, hearing that she had shortly before eaten some nuts, concluded she was suffering from acute indigestion and directed an emetic to be followed by purgation. Before these measures could be instituted her family physician came and, suspecting the possibility of internal hemorrhage, gave a hypodermic of morphin and directed she should be disturbed as little as possible. When I saw her twelve hours later, she was very pale, had a feeble, flickering pulse, skin surface cold, temperature sub-normal, resting quietly under morphin. I had no hesitancy in making a diagnosis of ruptured ectopic gestation with severe internal hemorrhage, but as she had evidently passed the danger point, I deferred operation. She was transferred to St. Joseph's hospital on the morning of the 14th and shortly after the abdomen opened. A large quantity of blood was evacuated and a rupture found in the right cornu of the uterus. The tube and ovary with some subperitoneal fibroid growths were removed. The uterus contained other fibroid growths, but her condition was not such as to justify further interference. She had an uninterrupted convalescence and has since given birth to a child.

Case 2. On Jan. 29, 1913, Mrs. A. C. was brought to the Jefferson Hospital as an emergency case with the diagnosis of acute appendicitis, and was sent by the examining physician to my service. I was operating when the nurse in charge came to my intern to inform him of the admission. He gave some instructions, but she returned in a few minutes, so I told him to go; that I would finish the operation with the aid of the student helper. Subsequently I went to the ward and found the intern engaged in the practice of artificial respiration, from which he desisted with the intimation that it was too late. The patient was apparently dead. I could feel neither a pulse nor hear any heart sounds. I saw an apparent attempt at respiration. I turned on the oxygen from a tank, placing the tube in her nostril, and directed that he should begin intravenous injection. Shortly after the efforts at respiration were more forcible and she was run into the operating room, hastily prepared and the abdomen opened. Three quarts of fluid blood were evacuated, and the left tube found to have been ruptured was ligated and removed. The patient recovered, having had a slight phlebitis. Some 1,500 cc. of salt solution containing a dram of adrenal solution (1-1000) and two ounces of whiskey were thrown into a vein. I am not certain that the whiskey may not have rendered the veins more sensitive to the phlebitis.

My greatest solicitude during recent years has not been awakened by the patients on whom I have operated early, even though in shock, but by those seen late or where for some reason the surgical treatment has been deferred. The patient is too much depressed to be influenced by fear of the operation. The administration of ether in small quantity under such circumstances is a stimulant, and the vessels are being filled with saline solution. The prime consideration is expedition; no time is to be lost in the removal of the fluid blood; its presence will aid in the more rapid resuscitation where infection has been avoided. The belly may be filled with salt solution before the wound is closed, and its completion should be followed by the Murphy drip. The first consideration is the arrest of the hemorrhage and to thus place the patient in a position that her powers can be husbanded.

The study of this subject seems to me to justify the following conclusions:

1. The general practitioner should be so trained that the concurrence of sudden abdominal pain, shock, faintness, feeble pulse and symptoms of profound anemia will awaken the suspicion of internal hemorrhage, and this should govern his procedure in treatment.

2. The physician so trained, if he thinks at all, will not ply such a patient with stimulants, but rather administer a sedative, for he will remember that a vessel is open, and that the only hope for relief outside its direct control by clamp or ligature is through the formation of a clot, whose further action increased blood-pressure would imperil.

3. As it cannot be assumed, in any case, that the clotting will be effective in the control of the hemorrhage, the greatest certainty is through efficient closure of the bleeding vessel through its ligation, and measures should be employed to secure this under the most favorable circumstances.

4. Where it is not practicable to secure immediate surgical relief the patient should be placed under the influence of morphin and be kept free from annoyance until she can be placed in proper environment for surgical measures.

5. Immediately preceding, or simultaneously with the incision of the abdomen, active stimulation, the most efficient of which is the intravenous transfusion of saline solution to which adrenalin has been added, should be begun and continued during the operative procedure, by which any additional shock through operation is more than counteracted.

6. Even though it is apparent that operation is not needed to ensure against further hemorrhage, to open the abdomen is advisable for the removal of large quantities of clotted blood as the forces of the patient are relieved from its care and disposal.

THE TECHNIQUE OF THE ENUCLEATION THYROIDECTOMY.

PAUL GRONNERUD, M. D.

Professor of Surgery and Operative Surgery, Illinois Post-Graduate School; Attending Surgeon, The West Side Hospital.

CHICAGO.

The operation about to be described will be found practically applicable to all parenchymatous goiters, whether of the cystic, colloid, fibrous, or mixed variety, but should never be attempted

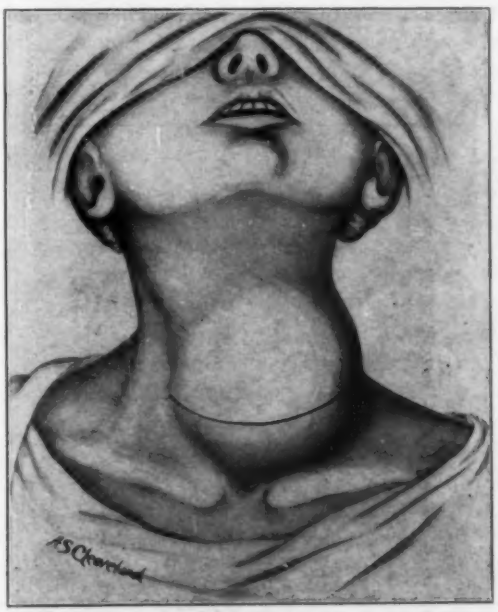


Fig 1. Line of Incision.

upon the vascular or active hyperplastic enlargements. It is a method very largely eliminating the use of clamps and accompanied by a minimum loss of blood, never followed by nerve complications, and when even mediocre surgical judg-

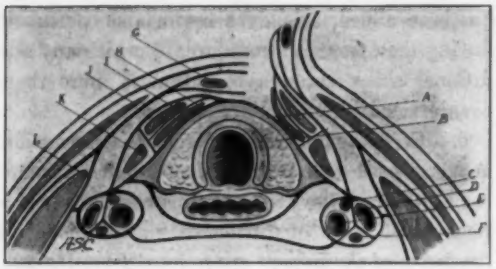


Fig. 2. A, True Capsule. B, Thyroid Gland. C, Descendens Cervici Nerve. D, Internal Jugular Vein. E, Common Carotid Artery. F, Pneumogastric Nerve. G, External Jugular Vein. H, Sterno-Thyroid Muscle. I, Sterno-Hyoid Muscle. J, Platysma Myoides Muscle. K, Anterior Belly of Omo-Hyoid. L, Sterno-Cleido-Mastoid Muscle.

ment is available, of extreme breadth in application.

In operating on this class of goiter it has been observed that the principle blood supply is carried by the membranous coverings of the gland, the so-called capsule, variation from this rule being very uncommon, if we except the vascular (exophthalmic) group. The branches entering the gland itself are uniformaly small, and although numerous, are not of such lumen as to occasion troublesome hemorrhage.

Fig. 3. Line of Cleavage in the Superficial Fascia; One-fourth Inch to the Side. A, Superficial Fascia. B, Sterno-Thyroid Muscle. C, Anterior Jugular Vein.

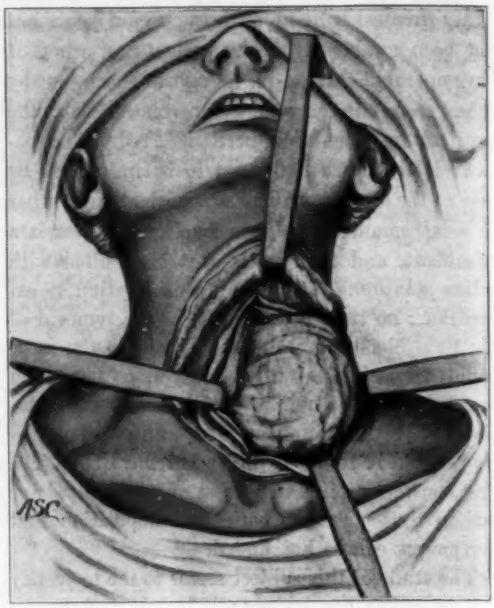


Fig. 4. The Thyroid Gland Is Here Seen Through the Anterior Layer of the Deep Fascia and the True Capsule.

The foregoing observations led to a more minute study of the anatomy of the organ and the development of a new technique which has worked so well that at present we follow it in more than two-thirds of all goiter cases.

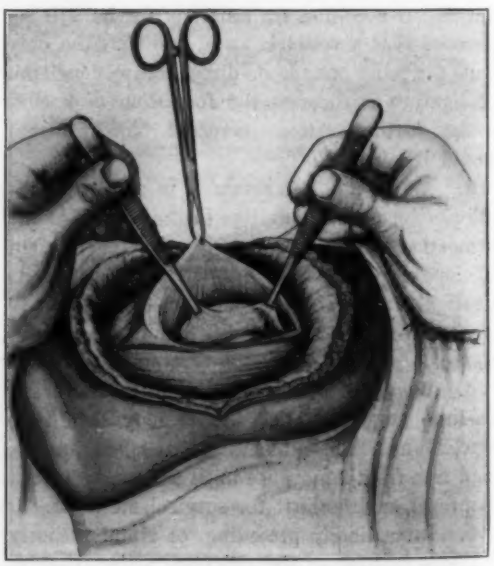


Fig. 5. The True Capsule Held Up by the Tissue Forceps and the Superior Thyroid Artery Seen Through the Thin Tissue.

The primary incision is made through the skin from the border of one sterno-cledo-mastoid muscle to the border of the other, as low down as possible for cosmetic effects (Fig. 1). The skin is now reflected by blunt disection sufficiently to provide an ample field for working. The regional anatomy is to be observed. No muscles are cut in the course of this procedure, for which reason the surgeon must be very well informed as to the structural relations with which he will now deal, to which end Fig. 2 is inserted.

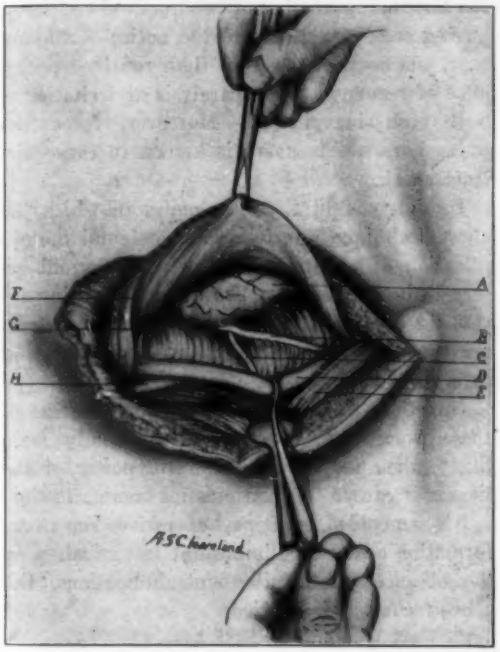


Fig. 6. Seen From Outside the Capsule. Recurrent Laryngeal Nerve Runs Over the Inferior Thyroid Artery. A, Outside of Sac. B, Recurrent Laryngeal Nerve. C, Inferior Thyroid Artery. D, Carotid Artery. E, Sterno-Cleido-Mastoid Muscle. F, terno-Hyoid and Sterno-Thyroid Muscles. G, Superior Thyroid Artery. H, Internal Jugular Vein.

The fascia is now raised slightly and cut parallel to the contained veins, and the cleavage line between the revealed edges of the sterno-thyroid and sterno-hyoid muscles observed. (Fig. 3.) These muscles are now separated and retracted (Fig. 4), revealing the encapsulating fascia of the gland. It will thereupon appear that the true capsule of this organ blends with the so-called Kocher fascia, and is very rich in arteries and veins. Open the anterior fascia, which is comparatively free from large vessels, and the thyroid capsule will be seen (Fig. 5). No clamps are used in these procedures, hemorrhage so far being slight and automatically ceasing on the correct separation of the tissue layers. We then open into the true capsule, and by posterior pressure, deliver the tumor (Fig. 6).

The tumor may now be enucleated without difficulty, leaving a comparatively bloodless bed, as shown in Figure 7, which depicts the arrangement of vessels in the true capsule.

Silkworm-gut is now inserted for drainage, and the opening closed with catgut sutures.

Figures 8 and 9 are inserted to show the variation in the regional anatomy, as seen from outside the sac of the gland. The difference in location and relation of the inferior thyroid artery and the recurrent laryngeal nerve and the coverings of the gland (the sac), is evident. Herein lies the danger to be overcome in other methods, in that in the adjustment of forceps on the artery

Fig. 7. Seen From Outside the Capsule. Recurrent Laryngeal Nerve Runs Under the Inferior Thyroid Artery. A, Sterno-Hyoid and Sterno-Thyroid Muscles. B, Superior Thyroid Artery. C, Internal Jugular Vein. D, Recurrent Laryngeal Nerve. E, Inferior Thyroid Artery. F, Carotid Artery. G, Sterno-Cleido-Mastoid Muscle.

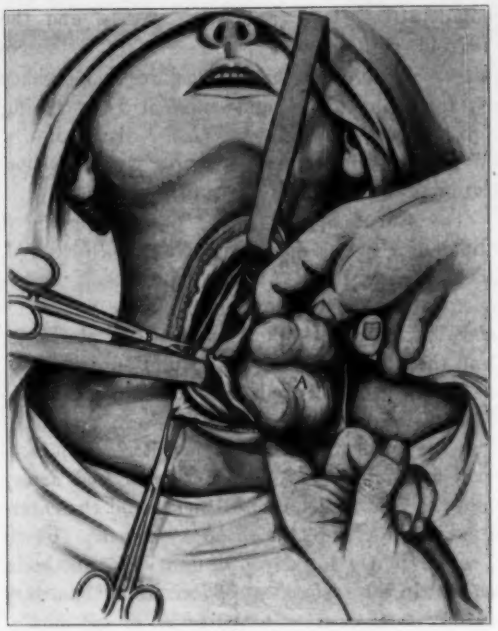


Fig. 8. The Thyroid Gland Being Lifted Out With the Forefinger. A, Thyroid Gland. B, True Capsule.

Fig. 9. The Gland Removed, Leaving the True Capsule With Its Vessels, Superior and Inferior Arteries Intact. AAAA, Retracting the True Capsule. B, Superior Thyroid Artery. C, Inferior Thyroid Artery.

oftentimes, as may be observed (Fig. 9), it would be extremely difficult, in fact, almost impossible, so to place the instrument as not to endanger the recurrent nerve. Yet, if we consider the number of clamps frequently observed in use during the thyroid operations, from twenty to the astounding number of two hundred and forty, having come frequently to the notice of the author, the occasional rather than routine appearance of recurrent nerve paralysis or irritation is well nigh inexplicable. Moreover, force impressed upon this nerve is known to cause distinct shock.

In ninety-eight thyroidectomies in which the above technique was followed, we found the application of clamps to the inferior thyroid artery to be necessary in two cases, but, being inside the capsule, no injury to the nerve was possible; necessity for clamping the superior thyroid artery has never arisen.

Infection, the most important complication of these procedures, is rendered materially more likely when reduction in reactive power of the tissues is caused by instrumental traumatization.

Air embolism and post-operative hematoma formation cease to be important factors when, in the absence of definite contraindications, the above technique is applied.

25 East Washington Street.

THYROID ENLARGEMENTS.*

STEPHEN C. BRADLEY, M. D.
MARSHALL, ILL.

1. *Thyroiditis.* Inflammation of the thyroid gland may be general or confined to one lobe. It may follow a general infection, such as typhoid, or may occur independently. The inflammation may subside, leaving no visible after effects, or may go on to suppuration. Thyroiditis is so rare in this locality that I shall leave it, with the report of one case.

In this case an acute inflammation developed in a simple goiter of many years standing. There was a very marked acute enlargement of the entire gland, accompanied by fever, tenderness and finally distinct fluctuation over the whole gland. On incision, a large quantity of pus escaped and drainage continued for several weeks, with complete disappearance of the goiter.

*Read before the Clark County Medical Society, Feb. 10, 1916.

2. *Tumors.* Tumors of the thyroid, other than the forms of goiter, are usually malignant. Last year I reported a case of carcinoma of the thyroid, in which the diagnosis was easy, as the patient expectorated bits of tissue which under the microscope showed the epithelial cells of the alveoli to be growing in typical cancer formation. The patient died from an inhalation pneumonia.

3. *Goiter.* The commonest and, therefore, most important enlargement of the thyroid is goiter. Several types are recognized pathologically. Hyperemic goiter, a hyperemic condition of the blood vessels of the gland, may be brought on by severe strain, as in singing, playing a wind instrument in a band or during the severe strain of childbirth. Hyperemic goiter is cured by rest.

The usual type of goiter, sometimes called hyperplastic goiter, is produced by enlargement of the old alveoli and development of new ones. The hyperplasia may be diffuse, but is usually limited to circumscribed lobules, enlargement of the left lobe and isthmus being more frequently seen in our office than general enlargement or enlargement of the right lobe.

Frequently in girls and occasionally in boys, goiters develop at puberty. This emphasizes the connection between the various organs of internal secretion, which must be borne in mind in treating these cases. The principal external factor credited with causing goiter is an ultramicroscopic organism sometimes found in drinking water. Boiling kills it and, judging from the number of cases we see, much of the water in Clark county would stand boiling.

Diagnosis in goiter is usually made by the patient and presents no difficulty.

Treatment of goiter is generally satisfactory. Personally I have never seen any benefit from administering thyroid extract, but I believe there are cases in which it will give good results. When the gland enlarges, it must be in response to a chemical stimulus demanding an increased secretion; hence to supply that demand by giving thyroid extract would relieve the gland and and stops its growth. This is theoretically good, but clinically I have obtained better results by giving various forms of iodine, by mouth and by inunction. Tincture of iodine painted on the neck, produces a nice dermatitis, but has very little effect on the goiter, because so little of it is absorbed. The U. S. P. iodine ointment is much better, but must be used fresh. Iodopetrogen, "made in America," is still better and I have obtained excellent results from iodide of mercury ointment. Sodium iodide in a weak solution, increasing its strength if no symptoms of iodism develop, is the most useful internal remedy.

4. *Exophthalmic Goiter.* The cause of exophthalmic goiter is still obscure, though several theories advanced seem to have good proof in a limited number of cases. To summarize all of them, there is a close connection between the various organs of internal secretion, the sympathetic nervous system and the central nervous system. A derangement anywhere in this chain may be responsible for exophthalmic goiter and any break in the circle may cure it.

We see several cases of exophthalmic goiter every year, nearly all of them very mild or beginning cases. The diagnosis is very easily made or very easily overlooked in this stage. The four cardinal symptoms form such a plain picture that no case will be overlooked if the doctor will keep it in mind when examining his nervous cases: 1. Usually moderate or very slight, enlargement of the thyroid; 2. rapid heart; 3. nervous tremor, and 4. staring eyes—this combination spells exophthalmic goiter. In addition, in the more advanced cases we can find the increased palpebral fissure (Stellwag's sign) failure of the upper lid to follow the eyeball when turned downward (von Graefe's sign), inability to focus the eyes together at short range (Moebius' sign), the unwrinkled forehead when asked to glance upward (Joffrey's sign), sometimes a capillary and even a venous pulse, and overacting heart with loud sounds, a murmur over the thyroid, a marked nervous condition. The goiter may be absent, but none of the other four chief symptoms will be lacking. The heart may show a rate of only 80 or 90, or it may be 160 or more. The tremor is fine and regular, most easily observed in the fingers and especially in the tongue. The exophthalmos may be so slight in early cases that it would be missed unless one is looking for it.

As to treatment, many things have been recommended and most of them have some good results to their credit. This agrees with my previous statement that a break anywhere in the chain of organs associated with the thyroid may

effect a cure. For instance, I have treated cases where the cure seemed to be due to giving corpus luteum extract, while in one case I feel sure the cure was due to thyroid extract. Rest is one of our most valuable aids in treatment, but much tact must be used in dealing with this nervous class of patients, and care must be used in prescribing rest. Absolute rest in bed may be needed in a few instances, but often these patients are so nervous and restless that varying degrees of exercise must be allowed if they are to do well.

Diet seldom requires much attention except in a general way.

The medical treatment, as suggested before, may follow the teachings of any of the leaders in Graves' disease research and many cases will be cured, but the most generally accepted medicines are quinine and ergotin, the former in five-grain doses, the latter in doses of one grain, repeated two to four times a day. Elimination should be kept good, sodium phosphate having been credited with many cures, although probably its only effect was to increase elimination. Other treatment need be directed only to symptoms as they arise.

Electrical treatment helps some cases and I have seen one young man cured by the use of the x-ray.

If a case is not improved by six months' medical treatment it still is not hopeless, for surgery can relieve nearly all the cases that medicine fails to cure. In the hands of surgeons with a large experience in goiter work the mortality has been reduced to less than five per cent. Removal of part of the gland is all that is necessary in most cases to cause a recession of the symptoms.

The outlook, therefore, for a victim of any of the diseases mentioned in this paper is really bright, only provided that his physician is wide awake and discovers his trouble early.

HYDROTHERAPY.

W. G. Russell, M. D.
FORTRESS MONROE, VA.

Excessive medication and blood letting, characterizing the practice of medicine in the early part of the 19th century, gave way to therapeutic conservatism.

*Read before the Chicago Medical Society, Jan. 19, 1916.

Prevention rather than cure, and the aiding of nature by simple and natural methods is the rationale of the practitioner of today.

More and more we are realizing that the best any physician can do is to put his patient in a position where nature can heal. Hence, we find that we are using less and less of drugs and substituting for them more rational remedies. Among the treatments which have largely taken the place of drugs, with the medical practitioner, is hydrotherapy, or the treatment of disease by water. This form of treatment has been employed for thousands of years. In fact, it is the only valuable therapeutic measure that has survived the ages and is now coming into its own, because of the unquestioned results obtained for the betterment of suffering humanity.

History—Before the human was, there was water treatment. The first vibration of cell life, from which we directly came, was, so far as we know, an hydrotherapy.

Later from the Bible we learn that Elijah prescribed a bath cure for Naaman, the leper.

In 300 B. C. there was hydrotherapy; in the beginning of the Christian Era, Christ prescribed water treatments. Hippocrates employed water treatments for many kinds of disease. Horace spoke of Musa, the hydropathic physician of Augustus. Celsus and Galen wrote favorably of the water cure, particularly in acute diseases, such as fevers.

In the middle ages it was advocated by many physicians, all of them favoring it for acute rather than chronic ailments.

In the pages of Latin writers we frequently meet with allusions to medicinal springs, testifying to the esteem in which they were held by the Romans.

When the capital of the Roman empire was removed to the East the well-known baths of Bruse, about sixty miles from Constantinople, were developed, and at this day they are the most celebrated baths in the Orient.

In Switzerland, in 1420, at Baden, there were two public and about twenty-eight private baths, attached to the hotels. Some 200 years later, in 1648, we have a description of life at Bath, England, by the quaint court gossip, Pepys.

About the beginning of the 18th century Sir John Floyer and Dr. Baynard made a large use of water; and one of the best and most scien-

tific works of early medical books is Dr. Currie's, in 1797, "Medical reports on effects of water, cold and warm."

So up to the beginning of the 19th century, water was used by some in acute, others in chronic diseases; by some, as an internal agent; by others as an external application in various forms, but never in all combinations.

This was first begun by Priesnitz, a Silesian farmer, who began a new era in water cure. This was due to his treating himself by cold water in accidents. He began in this way, then realizing its benefit he treated the poor people in his neighborhood. Then extended his range of treatments, increased modalities, used wet compresses, douche, sweating, wet sheet, together with much drinking of pure water.

In addition to water in these forms, he insisted on the value of exercise, fresh air and mental repose in the cure of diseases—thus establishing a new system of medical treatment.

At Grafenberg, up to 1841, for twenty years he treated 7,500 cases with but 39 deaths.

Priesnitz was not a physician, so was unable to fully understand and explain his treatments. Afterward, men of standing in medicine, realizing the benefits of hydrotherapy, explained it scientifically. From them has arisen the school of hydrotherapy.

Dr. Winternitz, in 1883, made clear its scientific value. When the introduction of antitoxic therapeutics threatened the disparagement of hydrotherapy, Dr. Winternitz, fortified by his biological, physiological and therapeutic learning, clearly set forth this scientific truth, that, while water possessed no antitoxic feature, it aided nature in its battle against the manifestation of toxemia by improving cardiac action, vivifying the nervous system and furthering the oxidation and elimination of toxic products, thus establishing more firmly than ever the scientific basis of hydrotherapy.

This opinion of the most judicious, philosophical and successful physicians of past ages, has been sustained by the judgment of this enlightened era.

Hydrotherapy is the most orthodox therapeutics in medicine.

Rationale—The chief, but not by any means, all of the effects of hydrotherapy concern the thermic and mechanical action of water upon the cutaneous surfaces of the body.

In connection with hydrotherapy it is only necessary to study briefly the anatomical structure of the skin for purposes of furthering a correct understanding of its functions. Those portions of the skin which contain the blood and nerve supplies will, therefore, interest us most. Their distribution over enormous areas and their interdependence, direct and indirect, with almost every organ in the human body, lend to the subject of the nerves and blood vessels of the skin paramount importance to the student of hydrotherapy.

This anatomical construction, by reason of which the cutaneous muscles are surrounded in their entire extent by a woof of elastic fibres which are connected with each other and with the tendinous formations existing in the skin, renders it plain that a shortening or tension of the muscular fibres always simultaneously contracts the elastic apparatus which is woven around their entire extent. This explains the vital import of the contractility of the skin when exerted upon the small blood-vessels contained in it. Inasmuch as the condition of tension of the skin may thus be readily varied in the most direct manner by reason of the universal presence of the elastic fibres, inasmuch as muscular coats are either absent in the vessels of the skin or are feebly developed, these structures really perform the function of an inhibitory apparatus which distributes uniformly pressure and motion, and enables the oblique muscular fibres which are embedded in the skin to regulate the secretion and circulation, the movement of lymph, and consequently the nutrition.

The papillæ contained in the upper layer of the cutis show fine capillary loops, or blood-vessels, which rise perpendicularly to the near vicinity of the epidermis. Smooth muscle is capable of irritation and contracts or expands under it. Peripheral nerves irritated cause the muscles about the capillaries which have no muscular coat to contract or expand.

Cold water applied to the skin irritates these nerves, which acting on the muscles about the capillaries cause them to contract and drive the blood toward the center, and then if the proper application has been made for the reaction, there is a return flow which sends the blood not

only back to the surface (as is shown by a glow), but to all the organs of the body. Then the white corpuscles floating about the shore of the current in the arteries are brought into the general circulation. The result is a large increase in white, and an increase, but in a lesser degree, of red corpuscles.

The nerves in general are not only thus stimulated, but the trophic centers as well. Then, too, the functions of the secretory and excretory glands are enhanced and the toxic material eliminated. Prolonged application of cold water does not bring about such a change, and if too prolonged, the parts affected die.

Hot applications relax muscular tissue, and so the capillaries (and then the reaction is a vis-a-tergo), and there is relaxation, depression; if too prolonged application, weakness, exhaustion, death. In this action and reaction the respiration is affected. Apply a sudden dash of cold water, respiration is deep—a gasp. The pulse, too, is slowed.

Water readily takes up heat and gives it off, so it is a valuable and variable thermal agent. It may be used in liquid, gas (steam) and solid (ice). The action of heat and cold are essential. Smooth fibre muscles expand under the action of moderate heat and contract under cold. Its contracting power may be destroyed by excess of either.

Cold and heat, therefore, act as irritants to the nervous system, and through the nerves all the organs may be acted upon to stimulate or depress their activities. The heart, lungs, liver, spleen, skin, etc., may all be influenced. The temperature and output of moisture and secretion may be regulated.

Thus by the use of heat and cold to certain portions of the skin, almost every organ in the body may be influenced through its blood vessels, and a skillful physician, who knows by scientific means of diagnosis, can by guiding and directing these effects, bring about changes in vascular states; can remove excess of blood from one part of the body to the other; can give tone to a weak heart, or to the muscles of the spinal cord; can increase the secretion from organs, such as the kidneys, etc., and so aid excretion of toxic material from the body.

We are learning many lessons from the great conflict abroad. One only concerns us right here and now. Away back in the primordial ocean the individual cell inherited or copied his ancester. Down through the ages since, the cell and the individual has imitated or followed the one before him—changed, developed and modified, it is true; the habit or mad rush to be with and like society or royalty at "The Cure" abroad being but one manifestation of this craze.

This is no criticism of the Spa, per se, abroad. Europe has wonderful cures. England, Germany, Italy, Austria and France are renowned for their hydrotherapy. Priesnitz, Floyer, Winternitz, Savanarolla, the Schotts, Charcot and Baruch are shining lights thrown all the way of the water cure.

It has been the mistake of our profession to imagine that hydrotherapy is not available in this country. Scattered throughout our land are healing springs, embracing every variety of water that is known in any country. These are hot or cold; sulphur or saline, and frequently charged with carbonic acid gas, in fact, every variety of water that is needful for "The Cure" as given abroad.

The trouble has not been in the lack of material, for "The Cure," but in the lack of knowledge of its application. This is now remedied, and establishments like Saratoga Springs, Hot Springs in Virginia and Arkansas, White Sulphur Springs in West Virginia, Hotel Chamberlin at old Point Comfort; the establishments at Battle Creek, Colorado Springs and the Hot Springs of Paso Robles, California, among others, are supplying the profession with up-to-date methods of applying material furnished by nature.

There are nowhere else in the world springs or cures more effective in remedial conditions, better equipped with scientific apparatus, more complete with comfortable accommodations, more interesting in environment, or better provided with skillful, ethical, conscientious physicians, than right here at home. There is, I repeat, no place in all the world so equipped for and suited to the proper care and treatment of Americans as "The Cure" made in America.

There are many reasons why you should not go abroad yourself or send patients, this year or any year.

The first consideration should be the fact that the American Cure is owned and operated by

American capital, managed by American brains, and that an American physician is in charge. Patriotism alone should impel you to give the American Cure every consideration. The convenience of the home place is another element; the question of time and money is always to be considered. Frequently it is at great sacrifice of both of these that people are sent abroad to take treatments. There is no reason for this. A course of baths can be taken in the time your patient would consume going and returning from the other side. Care should be taken to select a place which is accurately and scientifically administered, and one in which there is no co-operation between the physician in charge and the doctor at home. It frequently happens that after having made a careful diagnosis of a chronic case and treating it for some time, the physician at home finds that the results both to himself and his patient are not what either could wish. If he has investigated and knows "The Cure" that will meet the requirements of this case, the matter is simplified. If he has not investigated the advantages or disadvantages of different cures it is largely a matter of experiment where he sends his patient. This should not be. The doctor should know the conditions surrounding each "Cure" place, so that he may be quite sure he recommends the one suited to the needs of his patient. I would earnestly recommend that when sending people to a "Cure" your findings and suggestions be sent to the house physician. Naturally, he will make a careful examination of the physical condition of the patient, the blood tests will be taken, urine analysis made and other means of ascertaining what treatment should be given.

In a well regulated establishment the findings of the medical director are sent to you, with a complete schedule of what is possible to be done with your patient. At regular intervals reports are made to you, showing the progress made in the case. If necessary, you will be called in for consultation as often as courtesy and wisdom direct. Thus, there is perfect co-operation between you and the physician at "The Cure," and, whether the patient is benefited or cured, he returns home with gratitude and confidence in the doctor at the springs and renewed confidence and everlasting gratitude to his home physician. So, the home doctor keeps his patient and secures his patient's friends.

It is just as important for you to recommend a good cure place where your patients will receive proper care, as it is to give correct medicine of any kind. Frequently, in sending patients abroad, they are completely taken out of touch with the home physician, and the foreign doctor, naturally, having no sympathy and thought for the doctor at home, will consciously or unconsciously lessen the confidence the patient has in his own physician.

I wish to emphasize right here, that the mere application of water is not "The Cure," it is a complex, not water treatment per se. "The Cure" means not only the treatments described, but as well regulation of diet, change of mental conditions, drinking of mineral water—all these go to make up the completed cure.

The diet—The patient needs different food. Those in the interior should go to the seashore for sea food, and vice versa. Pure food in every detail without a suspicion of impurity, carefully prescribed and intelligently supervised. Again, an essential part of the cure is a change of mental state. The tired body needs a new and interesting environment. The tired thought centers and the resultant weary motor action needs renewing in a place not exciting but relaxing and restful. A new field where instead of trying to force away a tired thought a new one is substituted, so indirectly removing the old one.

The whole effect of treatments is emphasized by the mental attitude of the patient in the new environment. Our friend is taken out of himself, sees something different, hears something different and is prepared by this new condition to receive the benefits which the actual treatment will give.

Therefore it behooves us in sending our patients to take treatments to be sure that the new environment is attractive and interesting. The great cure places abroad especially emphasize this. We find the natural beauty and attractiveness of the country in which the Kur places are situated augmented by walks, attractive Kur houses, band music and everything to divert and distract the stranger, and all of these have a distinct therapeutic value.

The necessity for mental change is shown in

the fact that never have establishments giving even the most completed hydrotherapeutic treatments been successful in large centers; they failed to accomplish their mission because the patient was not put into a receptive state of mind by a change of environment.

It is also the *rest*, natural and naturally aided rest, that is prescribed rest. A very important part of "The Cure" *is proper exercise.* Not work but exercise by play, where possible, and all intelligently prescribed and supervised.

It is necessary, too, that there should be a rigid daily program (leaving no time to worry) suited to individual needs.

Last but not least, suggestion, by letting the patient know that you have thoroughly and scientifically examined him, and so corroborated his home physician's diagnosis, thereby gaining the patient's confidence. Then state to him decidedly, but honestly, a favorable prognosis, and, if possible, definite assurance of cure. Repeat this daily until he is so far advanced toward recovery that he not only knows that you are sincere, but until he knows what you say is true.

NAUHEIM BATH.

There are in hydrotherapy, I believe, about three hundred kinds of treatments. The Nauheim system is probably the best known of all. When the Drs. Schott developed this treatment abroad they rendered to the world an untold blessing.

At "The Cure" this bath is given with filtered sea-water, carbonated by a specially constructed apparatus. The technique of this and other systems, the Aix, the Vichy, the Chamberlin, etc., will be explained.

Rationale—Applications of cold or cool water to the body surface, rendered more stimulating, first, by the addition of considerable quantities of salts, chiefly such as will be found in sea-water; second, in the later stages by the introduction of that unrivalled stimulant to involuntary unstriped muscular fibre—carbonic acid. So marked is the effect of this skin tonic that, in severe cases of dilation, the almost incredible result is attained of causing the apex actually to retract three-quarters of an inch towards its normal position in a single treatment. Not only are the pulsations of the heart greatly lowered in frequency, but they are apparently increased proportionately in power, so that the work which was previously altogether too much for it is performed with comparative ease and comfort. In fact, the results obtained from this simple remedy sound almost too good to be true, and would hardly be believed if the repeated experience of competent clinicians did not almost unanimously verify them.

Experience with the Nauheim treatments has shown the baths to exert a beneficial effect, in various ways, in cardiac insufficiency. The most prominent among the results are:

To produce a more vigorous systole with diminution in the size of the heart and a reduction of the pulse rate.

Blood pressure is at first raised.

Respirations are deepened and slowed.

The skin is flushed and a glowing sense of warmth is felt, due to the increase in the carrying power of the peripheral vessels.

The effect upon the nervous system is sedative. A large proportion of patients sleep after the treatment and the remainder feel drowsy or, at least, quieted.

Because of the marked systemic effect of this treatment it is of great therapeutic value in a comparatively wide range of morbid conditions due to disturbances of the circulatory and nervous systems, as follows:

All classes of heart invalids have been found to be materially improved by restoration of compensation due to this treatment. The impaired nutrition of the myocardium is benefited by the freer coronary circulation. The labor of the overburdened heart is greatly diminished and its recuperation assisted. The influence on the blood paths is such as to accomplish an arteric dilation and a transfer of the abnormal amount of venous blood to the arterial side of circulation. Many heart invalids are enabled to lead lives of usefulness and happiness by an annual resort to the Nauheim treatment.

Patients suffering with angina pectoris have derived relief from the distressing symptoms.

Gout is counteracted by the effect of the treatment on the underlying derangements of metabolism.

Anemia and neurasthenia are cured by the improvement in the circulation and the oxygen absorbing power of the blood.

Paralyses of the peripheral variety, rheumatic or other exhausting diseases, are helped by the

stimulating effect of the treatment on the peripheral nerves.

Diseases of the spinal cord are improved or cured, because by means of the baths it is possible to exert a reflex influence upon the cord and thereby, to a certain degree, improve its circulatory and nutritive conditions.

Prof. Erb of Heidelberg says: "Patients having locomotor ataxia receive much benefit from the treatments. The pains are relieved, the gait improved and the progress of the disease is arrested in many cases." I have seen improvement in several cases. One, treated both by Prof. Erb and myself showed marked improvement.

Painful diseases peculiar to women are improved or cured when due to inflammatory exudates or congestive conditions.

That the nerve centers are brought under powerful influence is attested by the remarkable trophic changes which may be observed to follow the course of these baths, in cases of anemia, wasting, neurasthenia, and above all, trophic and probably other central nerve tissues. This is so lasting that progressive improvement may be observed for three or four months after the completion of the course. It need hardly be pointed out that such a process of general health restoration is a factor of great importance in cases in which the condition of the heart presents the main indication for treatment.

Dr. Schott's system of "Resistance Movements" or "Heart Gymnastics," consists of a systematic series of movements made by the patient as he is directed; each movement is gently resisted by the attendant, not to prevent the movement, but so as to produce a sensation of moderate resistance.

The object of the exercises is to throw into activity different groups of muscles, more especially those of the extremities, "in orderly succession without inducing fatigue." Their principal therapeutic effect is over the cardiac vascular system.

The resistance movements stimulate the peripheral motor nerves, while the baths act on the sensory nerve filaments. They exert a tonic effect on the myocardium and also tend to drive the venous blood to the right side of the heart by compression of the veins.

The action of the exercises is similar to that of the baths. The extremities become warm, breathing is freer and deeper, and the pulse is slower and stronger.

Technique—The bath consists of filtered sea, or salt water, carbonated to different degrees and usually given in a series. For example, each series consists of four baths, always bearing in mind the individual requirements. In the first series, we begin, perhaps with an ordinary tub filled with filtered sea, or salt water, and carbonated to the first degree. This should be given three or four hours after meals. (The diet I will describe later.) Temperature 98 degrees or as the case demands. Prescription read and pulse taken before and after baths. The time of this bath from seven to ten minutes. Patient lies quietly in tub. His pulse and general condition carefully watched. Then he is removed slowly, dried and wrapped in a blanket and lies down quietly in a rest-room *close to the bath*. This is a very important part of the treatment. In many places, here and abroad, the patient is allowed to walk to his hotel, or go some distance; this exercise often counteracting the good effects of the treatment. The next bath should usually be given on alternate days, temperature lowered one or two degrees, the time extended to ten minutes, the degree of carbonation perhaps the same.

I wish to emphasize the importance in many cases of giving the baths on *alternate* days, instead of two or three days in succession, then omitting one day. This may be all right for the European, but for the American better results are obtained by using it on alternate days. The succeeding baths of the first series are given in a similar way, but at a lower temperature, as a rule, and the time limited to 12 minutes, as the individual needs. Then the second and third series are given, at a still lower temperature and with increased carbonation, in a series of four or more as required. The temperature seldom lower than 80° F.

THE AIX AND VICHY SYSTEMS.

So long as the cold bath shall be regarded as a temperature reducing agent and be applied without friction its effect will be disappointing. Chafing of the skin during the bath stimulates by mechanical excitation the sensory terminals as well as the muscular structures surrounding the cutaneous vessels, whose response is made evident by hyperemia of the skin. The chilling effect of continuous cold is thus neutralized and the bath

may be given longer and colder without depression.

Technique—These two systems are somewhat similar in character and equally alike in intent and purpose. The Aix cure consists principally of both local and general douche-massage. The treatment is completed in accordance with the individual requirements by the aid of sweating cabinets and local vapor baths.

This douche-massage is given by one or two masseurs; the pressure of the douche, as well as its thermic quality, is regulated by the physician's prescription to meet the requirements of individual cases, as, also, is the length of time for taking the bath. By the Aix method single joints or circumscribed areas of the body can be played upon by the vertical jet and massage subsequently administered.

In the Vichy arrangement the patient is stretched at full length upon a canvas bed, and the entire body is subjected to large and continuous douches of hot water, while at the same time the whole body is vigorously massaged. After the treatment by either the Aix or Vichy Bath, the patient is sprayed to the point of reaction, dried and wrapped up in a flannel blanket for free prespiration as prescribed.

THE IONIC SYSTEM.

Cataphoresis and ionisation are now universally included under the one heading of ionic medication. This treatment consists in taking advantage of a property peculiar to the galvanic or constant current of conveying a medicine directly through the unbroken skin to that part of the body to be treated.

The galvanic current dissociates drugs into ions and these ions travel always to that pole opposite to their own charge, thus, negatively charged ions travel to the positive pole and positively charged ions to the negative pole. In this manner it is possible to administer a medicine directly to the actual seat of a complaint through the unbroken skin, even into the deeper parts, and with the important advantage that the ions must enter every cell through which the current passes. The effect of a medicine so administered is far more beneficial than when introduced by hypodermic injections or other methods, and this is explained by reason that the ions have a greater activity owing to their electric charge and to the fact that they are distributed through each cell through which the current circulates and are not so easily carried away by the blood.

THE CHAMBERLIN SYSTEM.

The principal feature involved in this treatment is the use of sea water, and a certain amount of friction and massage.

Here the spout, or continuous baths of sea water at a proper temperature is used, and for persons who cannot stand the shock of the more violent treatments, the massage baths of sea water and the plain salt tub baths are particularly grateful.

There is then a marked advantage in certain definite cases involving the effect upon the skin, nerve terminals and circulation, of certain mineral constituents in sea water, such as is used in the Chamberlin system. The effects of sea water advance beyond the thermic and mechanical irritation of plain water in possessing all of its good qualities and in addition certain others due to the salts, etc., held in solution.

Sea water has a specific gravity of 1.027 and contains 3.5 per cent. of salts, mainly sodium chlorid, magnesium chlorid, potassium sulphate, magnesium sulphate, calcium sulphate, magnesium bromid and small amounts of iodin and bromin and carbon dioxid in solution.

This combination has a decided stimulating effect upon the skin and nerve terminals, and excites reaction, and this enables the patient to tolerate the baths at a temperature two or three degrees lower than when fresh water is used, thus increasing both the tonic and derivative effects of the baths.

The attention of the scientific world has of late been called in a very striking manner to the curative properties of sea-water. Scientific interest has been aroused largely by Prof. Quinlan of College de France, who delivered a lecture in London on Isotonic sea-water, or, "Plasmamarin." Prof. Quinlan is a well-known man of science, who has specialized in biology and physiology, and has conducted some important experiments on the origin of life. He has succeeded in tracing the earlier forms of life to living beings in the primordial ocean.

The proportion of salts in the primordial ocean he found to be 0.08 per cent. throughout. Now it is well known that the proportion of salts in the animal tissues and serums is precisely this

amount. Hence, there is a blood relationship between the two.

This would point to the fact that we originated in the ocean depths (and Prof. Quinlan from such facts formulated his doctrine of "marine constancy"). Because of these facts he was led to believe in the value of isotonia plasena, which he obtained in the following way:

Pure sea-water was collected, which was free from contamination. This water is more saline than in prehistoric days. The water is then rendered isotonic; the plasma is the result. (The water is injected between the muscles in the lower part of the back). Freedom from pain is almost instantaneous.

Now that same principle of life vibration, ebb and flow, applies right here in the rationale. Surface circulation should ebb and flow in a rhythm with the central circulation.

In the Chamberlin system, the patient is prepared, that is, gotten into the best possible condition to bring about this reaction.

The average temperature of the nude skin is in the neighborhood of 90 degrees F. The difference between the skin and water temperature being the chief element in determining the reaction of the patient, it is evident that a water temperature near 90 degrees F. would be neutral or indifferent, while a water temperature considerably below 90 would become a decided thermic excitant, with proportionate reaction. Hence, it is frequently necessary in chronic cases to elevate the cutaneous temperature (cabinet baths) in order to increase the temperature difference between the skin and water.

There are three varieties of cabinet baths: hot air, steam and electric light. Each is radically different in effect. The electric light bath differs from the other two in the fact that the heat from the electric light is carried more deeply into the body. For this reason electric light bath at a temperature of 100 will produce practically the same results as a steam bath at a temperature of 118, or a hot bath at a temperature of 140.

The douche in some form follows the cabinet treatment. The locality and extent of the part thus treated influences general reaction not only clinically, but also physiologically. Goldscheider has experimentally confirmed what Charcot and others have long ago acted upon clinically, viz.: that certain parts of the body possess a finer sense for cold than others; e. g., while the back displays a very intense susceptibility to cold, the vicinity of the spinal region is decidedly less sensitive (Charcotdouche). Moreover, those parts of the cutaneous surface which have a better vascular supply offer a better response to cold (reaction).

Many times the shock of the douche, which we have mentioned, is too great for certain cases, and, yet, it is necessary for them to get a continued friction of the sea-water. For cases like these a continuous, or flowing, bath is used.

The patient is immersed in the tub and the filtered sea-water, at the fixed temperature, is allowed to flow in continuously, thus causing a gentle friction, which, in many instances, is soothing and stimulating.

MASSAGE.

While the practice of massage began long after water treatment, it has accompanied it as a valuable aid down through the ages. Some of the best advocates and expounders of this treatment are Ling, Meltzer, Sargent and Zander.

There are today really three types of massage. That used scientifically in connection with drugs or physical therapeutics, as exercise, hydrotherapy and electricity; that used in the school of osteopathy, which virtually massages and moves joints for the action on nerve centers, and that of the unfavorably known of the charlatan.

Slow and gentle stroking in a centripetal direction is called effleurage; deep rubbing is massage à friction; deep manipulation without friction is petrissage, and percussion or tapotement.

Rationale—Massage stimulates the circulatory and lymphatic systems, improves respiration, stimulates excretion and secretion, relaxes overcontracted parts, and contracts relaxed parts. It aids in interchange of oxygen and CO_2. It causes generation of heat. Mild massage eliminates heat; deep massage increases heat productions. It enhances vasomotor stimulation and aids metabolism and so increases nutrition.

ELECTRICITY.

High frequency currents used in so-called autoconduction and auto-condensation are now attracting world-wide medical attention. In their applications exceedingly high vibrations are set up in the tissues, and the therapeutic results are

due to a conversion of electrical into thermal and other forms of energy. The clinical effect of radiant light proves itself powerful as an eliminating agent and as a corrector of neurotic, nutrient and capillary disturbances. Radiant energy has two marked actions on the skin and tissues—one of stimulation and the other of sedation.

Electric lamps that possess the actinic and heat rays are powerfully stimulating and penetrating, producing dilation and penetrating the tissues, and act as a stimulant in a most gratifying manner.

The vibrations of the blue, red, orange and ultra-violet rays possess great germicidal power, and are suited to many peculiar forms of treatment.

High frequency currents and those of high potential are produced by the static machine, as well as by induction coils.

High frequency currents produce no sensory effects between the poles.

Oscillatory currents produce muscular contraction.

High frequency currents produce inhibitory effects such as anesthesia, lower arterial tension, etc. These currents are bactericidal. They eliminate toxic material, increase the number and depth of respiration, increase heat production, enhance the activity of the sweat glands, effect vaso-motor nerves and lower blood pressure.

FINSEN RAYS.

From the vacuum tube there is a slight radio-active effect, as the tube is energized by the high frequency current.

Hydrotherapy means not only external water treatment, but internal as well. We have already considered the value of mineral waters as used in the past, but if anything, they are more variously and generally employed at the present day.

America abounds in medicinal springs, each having its peculiar therapeutic value.

Drinking water has a definite influence upon the vasomotors, pulse rate, respiration, the excretory and secretory glands.

Many of these waters are valuable in chronic catarrhal conditions of the various membranes.

The results are so varied, in their effect for good or ill, that the kind of water, the quantity, temperature and the time for drinking it should be carefully prescribed.

You will notice in the analysis of the Chamberlin spring water that it is mildly aperient and radio-active.

The recent discovery that mineral waters as they come naturally from the earth are radio-active, has aroused the idea that each, if not all of the value of these waters consist of radio-active properties. It has been supposed that these waters absorb radium emanations in the depths of the earth. Radio-activity is permanent if the water contains the radium element; if only the emanations, it is transient.

Sea bathing for pleasure, cleanliness and exercise and consciously or unconsciously, as a therapeutic measure, has been used from time immemorial.

Swimming is, of course, Nature's best way of securing a bath and the active exercise strengthens the circulation. Many years of experience in different parts of the world has resulted in definite knowledge of the therapeutic value of sea-water bathing. Under proper supervision and on the advice of the physician great benefits are received.

Season and climate prevent one from obtaining such treatment when desired. At the Chamberlin an ocean bath of pure filtered sea-water, at the proper temperature, is available at all times during the year.

DISCUSSION.

Dr. William S. Sadler said that several years ago, when he became possessed with the idea that he would like to use hydrotherapy in private practice, he was slow to believe that the Nauheim bath in cardio-vascular diseases was adapted to the ambulatory patient; but with more diversified procedures he has become convinced that we are overlooking a great aid to our cardiovascular patients who cannot go to institutions to take the cure. If patients can rest from two to three hours following a bath, it is surprising what can be done for them, but if they have to go to and from baths in a car or street car, when they have been at home, the results of hydrotherapy are not so good. He believes the artistic combination of cold and hot baths is scientific and will accomplish great good and will help the doctor in using hydrotherapy. Every application of heat and cold is accompanied by action and reaction. Sometimes exactly the opposite may obtain, but with oscillation of the two we may get beneficial therapeutic effects. He believes the time has come when we cannot only carry out the "cure" as well in this country as abroad, but that we must also have the "cure" in our own homes, and that even the ambulatory patient may derive great benefit from cardiovascular gymnastics.

HEREDITY AND EVOLUTION.*

C. L. REDFIELD,

CHICAGO.

To acquire means to obtain by effort, by exertion, by the performance of work. Hence, an acquired character is a dynamic development of an organ obtained by exercising it. A mutilation is not so obtained and consequently is not an acquired character.

If an acquired development is to be inherited, the parent must make the acquirement first and get the offspring afterwards, not get the offspring first and make the acquirement afterwards. As the intellectual development of a human being is the result of many years of intellectual work, it follows that, if such acquirements are inherited, men born with exceptional mental powers should be the sons of mature and well-developed parents, who were the children of mature and well-developed grandparents, and these in turn the children of mature and well developed great-grandparents.

This is precisely what the pedigrees of intellectually great men show. They, their parents and their grand-parents were children of fathers averaging some 40 years of age at the times when their children in these pedigrees were born. As an average for a considerable number of births this is altogether exceptional—the normal average being about 32 years for fathers when sons are born.

As a reply to the charge that selected cases have been used to bolster up a non-meritorious theory, a money challenge has been standing for two years with the American Genetic Association for any one who can show a single case of a man of very great intellectual power who was produced by breeding which was as rapid as three generations to the century. As about two-thirds of all the people of the world are produced by breeding which is more rapid than three generations to the century, it is very significant that no very great man can be found produced in that way.

They tell us that man and the other higher animals have evolved from lower forms of animals by selection, but those who make that statement overlook a very obvious absurdity in their claim. To have selection, parents must have offspring, and to have more selection the offspring must produce another generation, and these in turn another. Each generation gives opportunity for selection, and the more generations the more selection. Anything which would reduce the number of generations in a given period of time would reduce the opportunities for selection to accomplish anything.

At some time in the past there was a common ancestor for man and the higher apes. As the apes breed at an earlier age than man does, it will be evident that there have been less generations, and consequently less selection, in the line leading from that common ancestor to man than in the lines leading to the apes. Further back in the past there was a common ancestor for the higher apes and the lower monkeys. There have been less generations, and consequently less selection, in the lines leading to the higher apes than in the lines leading to the lower monkeys. Carry that investigation down through the different species of active animals and it will be seen that each advance from a lower to a higher stage in evolution involves a reduction of selection, and that the most rapid improvement comes when selection is least.

Selection is not a cause of evolution from a lower to a higher stage. The real cause lies in the amount of work each generation does, on the average, before reproducing. When the amount of work per generation before reproducing increases, there is an advance; when it decreases there is degeneracy. There is a definite or standard amount of work per generation for each stage in evolution, and any change in this amount of work per generation involves a corresponding change in the evolutionary scale. When other things are equal, the time between generations accurately represents the amount of work involved.

A horse-power derived from a horse does not differ in any way from the horse-power derived from a steam engine. They are the same thing and do the same work. The result of a mathematical calculation performed by the human intelligence does not differ in any way from the result of the same calculation performed by a calculating machine driven by a steam engine. The energy which is the human intelligence, the ego, the immortal soul, is the same thing as the energy known in mechanics—and is governed by the same laws.

The first of these laws is that, while energy can

*Read before Chicago Medical Society, Feb. 2, 1916.

be put through many transformations, it can neither be created nor destroyed.

The second law is that energy, left to itself, normally dissipates, and can be concentrated or stored only by the performance of work.

We have an example of the operation of the second law in ordinary life. A man gains strength by exercise, and loses it by idleness. If the gain by exercise, physical or mental, is not carried over by heredity to the next generation, then evolution from a lower to a higher stage is nothing else than a continuous series of special creations. The Garden-of-Eden story had special creation completed in one act. The denial of the inheritance of acquirements necessarily involves the doctrine that special creation still continues, and is ever present in the reproductive process. The improvement in the American trotter during the past century involves either special creation or the inheritance of acquirements. Not otherwise can that improvement be explained.

53 West Jackson Blvd.

DISCUSSION.

DR. CHARLES J. LEWIS thought the essayist was fairly correct in his statement that children born of male parents in advanced life were better fitted in every way, providing they have the usual degree of health, than those born of young parents. Furthermore, the individual who had gone through his youth, gone through the earlier perior of maturity and had gone on almost toward the period of decline, had acquired a larger amount of experience, had brought into exercise all the energies of his body, and if these were transmitted to the offspring, he could transmit a better stored organism than he could before he had acquired those things, and especially was this so with reference to the manifold exercises of the nervous system.

DR. ANNA E. BLOUNT referred to the early experimental work done by scientists with reference to heredity and evolution, and begged of the members not to accept the theory of heredity as set forth by Mr. Redfield, and throw aside all the good work that had been done by universities without further thought in the matter. Professor Wiseman did not promulgate his theory of the non-inheritance of acquired characteristics without very much experiment. The statistical method adopted by the essayist in his research work was questionable, for according to the London Eugenic Laboratories, by the statistical method alone many mistakes are liable to creep in. Scientific biologists of universities rely very largely upon experimental methods.

WHY WE NEED A SYSTEM IN OUR PHYSICAL EXAMINATIONS.*

THOMAS P. FOLEY, M. D.
CHICAGO.

In one of his essays Emerson wrote "the chief difference between a wise man and an ignorant one is not that the first is acquainted with regions invisible to the second and away from common sight and interest, but that he understands the simple things which the second only sees." This remark aptly applies to physicians.

The idea advanced in this paper is to prove that errors in diagnosis depend principally on two factors; primarily, carelessness; secondarily, lack of system in examination. My proof for this assertion is in the report of cases personally examined, except the first case which is quoted from an American medical journal.

This case is briefly as follows: A woman entered a hospital complaining of a swelling in one breast. There were no glands palpable in the axilla. A frozen section from the tumor in the breast was pronounced benign—a lymphoma. She left the hospital without further treatment or examination. She returned five months later with tumors in the same breast and glands palpable in the axilla on that side. A clinical diagnosis of sarcoma was made and the breast amputated. Sections of the tumor removed were pronounced lymphosarcoma. As the opposite breast contained a tumor mass a radical operation was also done on that side. There was surgical shock after this operation. A blood count made before the death of the patient made the diagnosis. She had a lymphatic leukemia. Occurring in a good hospital this error can only be attributed to carelessness.

The second case was seen in the medical clinic at the Post-Graduate Dispensary. A colored man thirty years of age complained of pain under the left scapula. The pain had been present for four years; was practically constant but worse on exertion. On physical examination the only variation from normal was a slight dulness to the left of the sternum and above the normal heart area. There was no difference in radial blood pressure, but the x-ray revealed a large aneurism of the aorta. He had made the rounds of the dis-

*Read before the Douglas Park Branch of the Chicago Medical Society, November, 1915.

pensaries without having a complete examination made, probably due to the chronicity of his ailment, his apparent good health, and the common complaint of "pain in the back."

Another case, seen at the Post-Graduate, was that of a colored woman forty-five years old, whose cause for seeking relief was dyspnea and edema of the ankles. She had had this complaint for about one year. Physical examination of the heart was negative. The examination of single and twenty-four-hour specimens of urine indicated no disease of the kidney. At the suggestion of a visiting physician examinations of the stools were made for hookworm. These were negative. A complete examination of the blood made in the Zeit laboratory was negative. Finally a diagnosis of myxedema was made and thyroid therapy begun. The clinical result indicated that this diagnosis was correct. This woman had been treated with rest in bed and cardiac medication for heart disease without result. She had been limited to a salt free diet and given violent catharsis for nephritis. The error in this case was due more to lack of systematic examination than to carelessness.

The following is of interest because of its oddity. The police ambulance brought a woman to a large charity hospital. The ambulance surgeon said the woman had fallen unconscious while preparing the evening meal for her husband. The husband had rushed out and called a neighboring physician who made an examination and found the woman paralysed on the right side. He suggested hospital treatment and the police were called to transport her to the hospital. The woman was physically in a filthy condition.

The examining interne elicited the above history and in his examination raised the right arm which fell limp to her side. He raised the right leg and it fell back to the examining table apparently paralysed. Considering the onset and her age—fifty years—the apparent paralysis of the right side and waiving further examination because of her filthy condition, he entered her on the hospital records as "cerebral hemorrhage." She was taken to the ward, examined by the interne on service and seen by the attending physician without a change being made in the diagnosis.

Three days after, relatives visiting the patient gave the following history: She had fallen on the floor on the night in question, but the cause of her fall had been her husband. He had come home intoxicated and taking exception to her cooking had assaulted her, picking her up bodily and throwing her on the floor. With this additional history the interne in charge of the case made a second examination and discovered a fracture of the right humerus and the right femur. This apparently colossal error may be divided nine-tenths to carelessness and one-tenth to faith in the word of another.

Another case to the point was in the same hospital. A man between thirty and thirty-five years of age entered complaining of enlarged glands on one side of the neck. He was sent to a surgical ward with the diagnosis of "tuberculous glands." He was taken to the operating room five days later. Immediately after the primary incision had been made he became cyanotic. The operating surgeon accused the interne giving the anesthetic of carelessness. The interne stopped the administration of the anesthetic and the operation proceeded. The respirations of the patient ceased entirely and a hasty tracheotomy was done. Then an inspection of the mouth was made and plainly visible was a carcinoma of the tongue. The indictment is "no system in examination."

A man, aged fifty-five years, was seen at the Post-Graduate Dispensary. He complained of an abdominal tumor and frequency of urination at night. Physical examination revealed a small tumor about the size of an orange in the right lower pelvis and a moderately enlarged prostate. Examination of a single and twenty-four-hour specimen, which amounted to 1500 c.c., indicated a typical chronic interstitial nephritis. He passed from observation for five weeks and then returned to the clinic with every symptom exaggerated.

The tumor had increased in size until it reached half way to the umbilicus and he had lost considerable in weight. He was still arising two and three times a night to urinate. After considerable argument he was induced to enter the hospital where a probable diagnosis of malignant disease of the intestine was made and operation advised. Examination of the urine, single and twenty-four-hour specimens, was the same as when first seen in the dispensary. After a week in the hospital with no change in his physical condition or the symptoms he consented

to an operation. To be sure of the abdominal tumor before operation a catheter was passed and the tumor found to be a distended bladder. The operation for the enlarged prostate gave relief from the other symptoms.

A woman had been treated for two months in a well equipped dispensary for pulmonary tuberculosis. Her complaint was a rapid pulse, sweating at night, a gradual loss of weight and some loss of strength. She entered the dispensary without giving a history as to her previous treatment. The physical examination showed a Stellwag, VonGraefe, Moebius and a Kocher sign, a rapid pulse without a rise in temperature, a marked tremor and a moderately enlarged thyroid. Chest examination was negative. The diagnosis of toxic thyroid was made. Under treatment the symptoms cleared and the patient returned to her usual work.

These few cases are cited to prove that a diagnosis is possible if we only go far enough and are careful enough. They indicate that haste means errors. They prove that it is better to examine one patient and know something about the case than to examine twenty cases and know nothing about any of them. We all make mistakes, but when we analyze them we learn that nine out of ten are due to carelessness rather than ignorance and to lack of system in our examinations. As someone wrote "experience is the school of mankind and they will learn at no other."

25 E. Washington Street.

HYPERTENSION.*

JAMES G. CARR, M. D.

Instructor in Medicine, Northwestern University Medical School; Instructor in Medicine Post-Graduate Medical School.

CHICAGO.

If the conceptions as to the value of blood pressure estimations, which prevailed several years ago, were still valid, I would need to offer an apology for presuming to take your time with a discussion of the subject. But our procedure in the use of the sphygmomanometer and our conclusions from the facts obtained have been subject to criticism and modification to such an extent that our valuation of blood pressure estimations as to diagnosis, prognosis and treatment has been materially altered.

When the sphygmomanometer first came into general use for clinical purposes, it was broadly assumed that the determination of the systolic pressure alone warranted certain deductions in regard to diagnosis, prognosis and treatment: repeated errors in diagnosis, ridiculous failures in prognosis and disappointments in treatment, humiliating to the physician and often serious for the patient demonstrated that something was wrong, either with our use of the instrument or our interpretation of the findings. Continued study, experimental and clinical, has shown that the principal mistake has lain in the too implicit acceptance of the idea that systolic readings alone are sufficient for practical conclusions regarding hypertensive states and their underlying conditions. Systolic readings, alone, are fully as likely to mislead as to inform. Save in the single instance of life insurance examinations, a systolic reading is not to be regarded as an index for diagnosis, prognosis or treatment. In life insurance work, the occurrence of high pressure on two or three separate occasions may reasonably be regarded as a sufficient reason for rejection of the risk.

It is important, at the outset, to define certain terms and to state the normal values of the necessary readings. The pressure within the blood vessels at any given time is the result of the peripheral resistance plus the energy imparted to the blood stream by the ventricular systole. The systolic pressure, or maximum pressure, is the measure, expressed in mm. of a column of mercury, of the total blood pressure: i. e., the peripheral resistance plus the rise of pressure occasioned by the cardiac systole. The diastolic, or minimum pressure, is the pressure constantly present in the vessels and really is a measure of the peripheral resistance: it represents the blood pressure when the heart is quiet. The term pulse pressure signifies the measure of the force of the heart's beat, and is equal to the difference between the systolic and diastolic pressures.

The normal systolic pressure varies from 115 to 135, as stated by most authors: in my own experience a surprisingly large majority of individuals show a systolic pressure very close to 120. The figures vary for age and sex: the pressure normally increasing with advancing years and being generally higher in males. At the age of 50, a systolic pressure of 150 may be suggestive, but certainly has much less significance than the same pressure would have at 25 or 30. The

*Read before Douglas Park Branch, March 21, 1916.

diastolic pressure should equal about two-thirds of the systolic: a systolic of 120 means a normal diastolic of about 80, leaving a pulse pressure of about 40: and in general it may be said that the pulse pressure should equal 50 per cent. of the diastolic pressure.

In determining these figures we may make use of one or more of the standard methods of physical examination, inspection, palpation and auscultation: by inspection we determine the systolic pressure by noting the disappearance of vibrations of the column of mercury: the diastolic pressure is read at the point of maximum vibration. As a method for reading the systolic pressure, the method is not accurate on account of the impossibility of excluding vibrations from the peripheral vessels, after the proximal blood stream in the vessel compressed is shut off. Palpation is used to determine the disappearance of the pulse: the systolic pressure is read with the first palpable beat, as pressure is released after the vessel has been completely shut off. In using the stethoscope, the method of auscultation, the bell of the instrument is placed over the vessel compressed, just below the cuff of the sphygmomanometer. The systolic pressure is measured by the first return of sound as the pressure is released after the vessel has been completely blocked: the diastolic pressure is read, as the pressure is gradually released, at the point where the sharp, clear tone (heard more distinctly as the pressure falls from the systolic height) becomes abruptly muffled. Warfield[1] has studied this subject thoroughly, and has been most active in teaching the profession the value of diastolic readings, and the course of procedure in taking the same. He states that he has proven experimentally that the "measure of the diastolic pressure is to be taken when the first dull tone" (as the pressure is increased) "is followed by a loud sharp one, and not at the point of disappearance of all sound" (as the pressure is decreased) as has been claimed by some investigators.

In a discussion of hypertension, as a clinical entity, what do we mean? There are many conditions associated with increased blood pressure in which the blood pressure is only an ordinary symptom, and not one of the outstanding features of the disease: these are not properly included under hypertension as we are using the term here. The systolic pressure is high in brain tumor, meningeal hemorrhage, tuberculous and syphilitic meningitis, in other types of nervous syphilis, occasionally in neurasthenia, and in Graves' disease; as a routine finding in gout and lead poisoning, frequently in diabetes, it occurs in connection with the menopause; it is practically always present in the rare disease known as polycythemia; aortic regurgitation is usually associated with increased systolic pressure, and is the one disease characterized by an increased pulse pressure. High pressure is sometimes found, on the first examination, from sheer nervousness; excessive use of coffee and tobacco will produce a high pressure, which may disappear with the removal of the cause, as will also great mental strain or worry. Pregnancy is frequently accompanied, without toxemic symptoms, with a pressure rise of some 20 points, both systolic and diastolic. But the condition which we discuss as hypertension includes none of these, though it is closely related to the high tensions of gout, lead poisoning, the menopause and tobacco intoxication. Under the term hypertension we include those cases of persistently high blood pressure, occurring along with other evidences of nephritis or vascular disease or independently of any underlying disease. So far as we can demonstrate by present methods of examination, it really includes cases which ultimately belong under the headings of chronic interstitial nephritis, arteriosclerosis, or primary hypertrophy of the heart.

What is the significance from a diagnostic standpoint of high arterial tension? Persistently high arterial tension usually means chronic interstitial nephritis; even though the urinary findings of this clinical entity are not present, hypertension may rightly be regarded as very suggestive of this form of nephritis. Miller[2] believes that hypertension practically always means nephritis, and emphasizes his own experience in finding showers of casts from time to time, in urine that is usually free from the typical findings of nephritis; in any event, hypertension means a condition of the vessels or kidneys, usually of both, incurable, progressive and ultimately fatal, most frequently as a result of cardiac failure, uremia, apoplexy or angina.

The main problem of diagnosis is concerned with the pathological physiology of the disease; chronic hypertension points to progressive changes in the vessels, kidneys and heart. That we know well enough. But what is the factor that underlies the disease? Have we found a cause, physi-

cal or chemical, which produces these changes, and against which we may direct our treatment to stop the progress of the disease? As the case stands now, owing to our ignorance of the causative factor or factors, our treatment is really nothing more than prophylaxis applied after the pathological changes are well advanced; hence foredoomed to failure, so far as a cure is concerned. We believe, for instance, that a sedentary life, overeating, mental strain, overindulgence in alcohol and tobacco, syphilis, and long continued exposure to such poisons as lead are etiological factors. But we do not know how they act, nor what intermediary poisons they are responsible for, nor what factors from other sources may be associated with them. The actual effect on the vessels has been attributed to adrenalin, to an excess of sugar in the blood, to various unknown pressor bodies, the result of incomplete nitrogenous metabolism, and, of old, to urea; but lead is the sole poison, in our knowledge, of which it can be said, that we know it does produce high tension with the cardiac and nephritic accompaniments of the same. The old theories of the high pressure as a compensatory mechanism to increase the circulation and maintain the urinary output through kidneys damaged by some unknown poison, retained as a result of their own deficient function, while unable to stand the test of rigid criticism, has more than a grain of truth, and cannot, as yet, be altogether discarded. Cohnheim believed (the original idea being Traube's) that the high tension is a compensatory effort to maintain the volume of flow through the healthy portions of diseased kidneys. Jores,[3] writing in 1913, speaks of the similarity of his own ideas to the old idea of Gull and Sutton, whose names were in all our text-books. He says, "The observation made by Gull and Sutton has been confirmed by recent observation, that the small arteries of the entire body are involved in the cases of granular kidney." Again, he says, "In the majority of cases, particularly in the granular kidney, the vessel alteration is the chief factor in the production of contracted kidney. The arterioles affected with a marked arteriosclerotic degeneration produce a nutritional disturbance of the kidney parenchyma," and later makes the statement that "The primary blood pressure increase is the underlying cause of the heart hypertrophy as well as of the contracted kidney; or it may be considered that the poisons which produce a contracted kidney, from the start, produce a rise in blood pressure." Janeway[4] quotes Bright's original article, partly as evidence of the remarkable powers of observation and judgment of the great English clinician, but also, as he states, because "these suggestions contained the germ of such subsequent explanations of the phenomena as have attained to any wide acceptance." The quotation from Bright runs thus: "The obvious structural changes in the heart have consisted chiefly of hypertrophy, with or without valvular disease, and what is most striking, out of fifty-two cases of hypertrophy, no valvular disease whatever could be detected in thirty-four. This naturally leads us to look for some less local cause for the unusual efforts to which the heart has been impelled, and the two most ready solutions appear to be, either that the altered quality of the blood affords irregular and unwonted stimulus to the organ immediately, or that it so affects the minute and capillary circulation, as to render greater action necessary to force the blood through the distant subdivisions of the vascular system." Not a bad recapitulation of our present beliefs in regard to hypertension.

To sum up the significance of hypertension from the diagnostic standpoint: the condition usually means nephritis of the interstitial type; if other findings of nephritis are not present, they are likely to develop later. Finally, the hypertension may, in rare cases, be evidence of so-called idiopathic hypertrophy of the heart, a discussion of which we will not undertake now. And the question of diagnosis should not be dropped without emphasis on the importance of the diastolic pressure in making up the diagnosis of hypertension. To quote Stone,[5] "since the diastolic pressure measures the peripheral resistance it is a better index of hypertension than the systolic pressure," and Warfield says,[6] "The conviction is growing that it is the height of the diastolic pressure rather than that of the systolic that is the really vital point in blood pressure determinations."

The value of hypertension alone, as an index of prognosis, is almost nil. Save in cases where the diastolic and systolic pressures are both high and show no response to treatment, prognosis based on the single symptom of hypertension must be very guarded. The prognosis rests primarily

on the response to treatment. In addition, one must consider the evidence of cardiac disease, the condition of the kidneys, the history of the duration of the disease, the presence or absence of symptoms of uremia or premonitory symptoms of apoplexy, the patient's financial ability to drop business or household worries, and to get the best care, his moral ability to discard bad habits and to give up the pleasures of the table. The pressure may show an abrupt rise just prior to the onset of uremia; a less rapid rise may be seen as broken compensation supervenes. A high pulse pressure means a heart overworked, and is significant of impending trouble; a low pulse pressure means a weak heart that is unequal to its work, and is even more ominous.

From the standpoint of treatment, the cases of hypertension may broadly be considered in three classes:

First: Cases of hypertension without symptoms. These are the cases accidentally discovered in the course of a life insurance examination or of a routine examination made without thought of hypertension. The treatment is exclusively hygienic and dietetic; the patient should be warned and his co-operation secured; overwork, worry, excessive social activities should be forbidden; tobacco and alcohol should be given up; care should be taken to avoid exposure; the bowels should be regulated; as to the diet proteins, salt and food rich in purin bodies should be distinctly limited, not necessarily forbidden; overeating should be interdicted, and rich, heavy, indigestible food of all sorts should be warned against.

The second class is made up of those cases of hypertension which show symptoms due to the high blood pressure. These are the patients with headache, vertigo, insomnia, tinnitus, disturbances of vision, numbness and tingling of the extremities, neuroses of various sorts (senile neurasthenia usually means arteriosclerosis or hypertension), angina, thoracic or abdominal, and rarer conditions as intermittent claudication or erythromelalgia. The treatment along dietetic and hygienic lines is the same, only more so, as for cases of the first class; a stricter diet, a carefully regulated life, abstention from tobacco, alcohol and coffee, residence in a warmer climate in the winter, if possible, entire freedom from business or household cares. Potassium iodid in moderate doses (5 to 15 grs. t. i. d.) over long periods of time is the drug of choice; it matters little that we do not know why the drug is useful, the fact still remains that clinical experience approves it. Venesection may be employed from time to time, in the presence of an aggravation of the symptoms. Tr. Aconite, given with the iodid, is an old remedy, which has fallen into disuse; given carefully, it sometimes has a decidedly good effect. It is in this class of cases that the various members of the nitrite group have been used most extensively and their use deserves some discussion, though the limits of this paper forbid an adequate presentation of the subject. I quote Warfield again:[7] "Much of the hypertension which we see is a compensatory effort on the part of the heart to maintain the circulation in equilibrium. Regarded in this light it becomes physiologic and successful attempts to reduce it, not infrequently produce unpleasant results." This expresses the attitude of the profession at present; medical reduction of blood pressure by means of members of the nitrite group is a risky procedure. I except such crises as the various types of angina where amyl nitrite and nitroglycerin are used to such good purpose, but I regard the continued use of vasodilators as generally ill-advised, and more likely to harm than to help.

The third group comprises the cases of hypertension with broken compensation. The hygienic and dietetic treatment must be rigid; rest in bed, a milk diet, absolute or nearly so, fairly profuse catharsis are indicated without delay. The drug therapy consists in the use of potassium iodid, opiates as necessary, and digitalis; under digitalis the pressure usually falls several points, and improvement is likely to be marked. Fear of digitalis is groundless. In these cases of high pressure with broken compensation it is our mainstay, and after compensation is restored, its use in smaller doses may be continued over long periods of time. And again, we must mention venesection, which is often of great value, especially in relieving distress while awaiting the action of digitalis.

2209 W. 22d Street.

BIBLIOGRAPHY.

1. Warfield: Arch. Int. Med., 1913, Vol. X, p. 258.
2. Miller, J. L.: Jour. A. M. A., Oct. 4, 1913.
3. Jores: Anat. Grundl. Wichtiger Krankh, pp. 355-358.
4. Janeway, T. C.: Amer. Jour. Med. Sc., May, 1913.
5. Stone: Jour. A. M. A., Oct. 4, 1913.
6. Warfield: Amer. Jour. Med. Sc., December, 1914.
7. Warfield: Jour. A. M. A., Oct. 4, 1913.

HEMOLYTIC ICTERUS AND OTHER ANEMIAS, WITH SPECIAL REFERENCE TO THE FRAGILITY OF THE RED CORPUSCLES.*

DAVID J. DAVIS, M. D.

CHICAGO.

(From the Department of Experimental Medicine, University of Illinois, Chicago.)

In this paper are presented certain data obtained with especial reference to the fragility of the blood corpuscles from patients in an icteric or an anemic state.

The technic of determining the fragility of red corpuscles is essentially that given by Hamburger.[1] In many cases both washed and unwashed corpuscles were used. The results were not essentially different, excepting that on the whole the washed gave less uniform and less definite results. It was often noted, for instance, that the end point of hemolysis for the washed corpuscle was less distinct, thus making the reading more difficult. Of late, therefore, as a routine the whole blood has been preferred and much of the data on fragility presented in the subsequent table was obtained in this way.

Three cases of clinical hemolytic icterus were observed (Table I Nos. 1, 2, and 3). Brief notes on them are here given:

Case 1. Mr. E., aged 17 years. No family history of icterus or anemia. Patient was a "yellow baby" at birth, and has been jaundiced since. This jaundice has varied in intensity, but never entirely disappears. Subject since birth to periods of fever, without known cause; temperature frequently reaches 102° F. and at times with this fever night sweats. The stools are always well colored; urine dark, no pruritus; in fact except at febrile periods patient considers that he enjoys good health. Physical examination: Well developed, well nourished boy, deeply icteric, but no evidence of bronzing; pulse rate normal. Spleen much enlarged, reaching 14 c.m. below the costal arch, not tender. Liver 2 c.m. below the arch. Tenderness over gall bladder region. Urine dark, contains urobilin, and urobilinogen tests were always marked; hemoglobin 85 per cent.; reds, 4,800,000.

This examination was made during his febrile period. A later examination when afebrile showed the spleen considerably smaller—only 9 c.m. below the arch; the liver was no longer palpable and the tenderness over the gall bladder region had disappeared.

Bile was present in the serum which was always of a strikingly yellowish color. Urobilin and urobilinogen tests were constantly negative. The urine, however, gave the reverse reactions, i. e., the urobilin and urobilinogen tests were always marked but bile was absent. Hemoglobin was absent in the urine, the resistance limits. (NaCl) of the washed red corpuscles was .400-.475 and that of the unwashed was

*Read at a meeting of the Medical Research Club, University of Illinois, Chicago, March, 1916.

1. Osmotischer Druck und Ionenlehre in den Med. Wissenschaften, Band I, p. 362.

TABLE I.

Case No.	Clinical Diagnosis.	Age.	Jaundice.	Bile in Serum.	Urobilin in Serum.	Agglut. of Reds.	Bile in Urine.	Urobilin and Urobilinogen in Urine.	Fragility.	Remarks.
1.	Hemolytic icterus	17	+	+	0	0	0	++	.425-.475	Hemoglobin=60%
2.	Hemolytic icterus	Adult	+	0	0	0	0	++	.375-.475	Family type
3.	Hemolytic icterus	18	+	—	—	—	0	+	.400-.600	
4.	Obstructive jaundice	50	+	+	—	—	+	—	.275-.350	Stools white
5.	Obstructive jaundice	50	+++	+	—	0	+	—	.325-.300	Stools white
6.	Obstructive jaundice	Adult	++	+	—	0	+	—	.300-.375	Stools white
7.	Acute catarrhal icterus	Adult	++	+	—	0	+	—	.275-.350	Stools white
8.	Pneumonia and icterus.	35	+	—	—	—	—	—	.325-.375	
9.	Carc. of stomach, alcoholic cirrhosis	Adult	+	+	—	—	—	—	.275-.375	Hemoglobin=14%
10.	Carcinoma of stomach	62	+	—	—	—	+	—	.325-.375	
11.	Syphilitic hepatitis	28	+++	+	—	—	+	—	.300-.375	Stools white
12.	Carc. of bowel liver metastases	50	+	+	—	—	+	—	.300-.350	
13.	Biliary cirrhosis	Adult	+	+	—	—	+	—	.250-.325	
14.	Hepatitis?	35	+	+	—	—	+	—	.250-.350	Wassermann negative
15.	Syphilis of liver	60	+	0	0	0	0	++	.275-.375	Wassermann ++
16.	Phosphorus poisoning	Adult	+	—	—	0	+	—	.300-.375	Leucin crystals in urine
17.	Hanot's cirrhosis	Adult	++	+	—	—	—	—	.325-.400	
18.	Hanot's cirrhosis	Adult	+	+	0	+	+	—	.300-.375	
19.	Pernicious anemia	Adult	0	—	—	—	—	—	.275-.350	Hemoglobin 28%
20.	Pernicious anemia	Adult	0	—	—	—	—	—	.325-.375	
21.	Pernicious anemia	40	0	—	—	—	—	—	.325-.375	
22.	Pernicious anemia	Adult	0	—	—	—	—	—	.325-.400	
23.	Pernicious anemia	Adult	0	—	—	—	—	—	.325-.375	
24.	Carc. of stomach	Adult	0	—	—	0	—	—	.325-.425	Hemoglobin=40%
25.	Carc. of rectum	56	0	—	—	—	0	—	.275-.350	Hemoglobin=55%
26.	Malignant tumor of kidney	58	0	—	—	—	0	—	.325-.375	Hemoglobin=40%
27.	Carc. of stomach	Adult	0	—	—	—	—	—	.300-.400	Hemoglobin=45%
28.	Carc. of stomach, alc. cirrhosis	Adult	0	—	—	—	—	—	.275-.375	Hemoglobin=14%
29.	Syphilis	6	0	—	—	—	0	+	.350-.400	Wassermann ++
30.	Hodgkin's disease	Adult	0	—	—	—	—	—	.325-.425	
31.	Splenectomy, four years previously	Adult	0	—	—	—	—	—	.350-.425	
32.	Transient icterus diag. ?	30	At times	—	—	—	0	—	.375-.450	
33.	Reynaud's disease	50	0	—	—	0	0	—	.325-.425	
34.	Normal	Adult	—	—	—	—	—	—	.325-.425	
35.	Normal	Adult	—	—	—	—	—	—	.325-.425	
36.	Normal	Adult	—	—	—	—	—	—	.350-.425	
37.	Normal	Adult	—	—	—	—	—	—	.350-.425	
38.	Normal	Adult	—	—	—	—	—	—	.325-.400	

the same. One test gave .425-.475. Other hemolytic tests on the resistance of the corpuscles of this patient were made as follows:

Normal serum (No. 1) + patient's corp. (washed) = no hemolysis.

Normal serum (No. 2) + patient's corp. (washed) = no hemolysis.

Normal serum (No. 3) + patient's corp. (washed) = no hemolysis.

Patient's serum + normal corpuscles = no hemolysis.

Normal serum + normal corp. + complement = no hemolysis.

Normal serum + patient's corp. + complement = no hemolysis.

Patient's serum + normal corp. + complement = no hemolysis.

Patient's serum + patient's corp. + complement = no hemolysis.

It would seem, therefore, that there was nothing abnormal in the behavior of the patient's serum or corpuscles as indicated by these cross experiments. The Wassermann test was negative.

The stools were not clay colored and gave a strong positive reaction with the sublimate test and also for urobilin.

Case 2. The second case of hemolytic icterus was evidently of the family type and concerned a young woman, Mrs. S., aged 32 years; O-para; born and lives in Illinois. Father was jaundiced during the later years of life, but definite particulars could not be obtained. There are nine members of the family; two brothers and three sisters jaundiced since childhood, two of these known to have large spleens. One brother who is icteric was told he had tuberculosis. The patient has been jaundiced for seventeen years and complains only of lassitude. No pruritus. No history of fever. Was treated for "enlarged spleen" several years ago. Three years ago operation on gall bladder, and was told that stones were found. Reports that stools are well colored. The patient is well nourished; deeply icteric; pulse 80; temperature normal. Spleen reaches two-thirds distance to crest of ileum, not tender. Liver 3 c.m. below costal arch, not tender. Urine free from bile; contains urobilin. Hemoglobin, 75 per cent.; leucocytes, 3,300.

In the urine there was no bile, but urobilin and urobilinogen were found in large amounts (chemical and spectroscopic tests). The blood serum had a characteristic yellow color similar to the previous case, but the test for bile was negative as were also tests for urobilin and urobilinogen. The fragility of the red corpuscles was .375-.475.

Case 3. Mr. T., aged 18 years. A patient of Dr. Robt. Preble, who has kindly permitted the use of the following clinical notes:

Family history negative as far as jaundice is concerned. Had scarlatina at ten years; no other serious illness. Jaundice appeared six years ago; does not cause him any inconvenience. No history of fever.

Patient icteric. Spleen four fingers below the costal arch. Liver not palpable. Stools and urine both contain bile. Hemoglobin, 82 per cent.; reds, 4,200,000; leucocytes, 11,400. Fragility ranges from .400 to .600.

The increase of fragility in two of these cases is not marked though compared with the fragility in the five normal individuals, shown in the table, the figures are high, exceeding the latter by about 5 per cent. Case three shows a more marked increase of fragility.

In the table, following these cases of hemolytic icterus, is a series of icteric cases chiefly of the obstructive type, with bile in the urine; also a series of pernicious anemias. In both these groups the fragility is strikingly decreased, ranging as a rule well down below .400 as a minimum. It is in contrast with these that the fragility figures of the hemolytic icterus cases stand out. A number of observers (Morse, Chaufford, Sommel, Turk) have noted cases of clinical hemolytic icterus without marked increase of fragility or with normal resistance of red corpuscles. But it appears that no one has observed in these cases decreased fragility as occurs so uniformly in the obstructive icterus. For purposes, therefore, of differentiating the hemolytic icterus from the hepatogenous type even normal fragility of the hemolytic icterus, which may exist, may be of value for diagnostic purposes.

Attention is called to the two cases (Nos. 17 and 18) of cirrhosis of the Hanot's type. The fragility in both is below normal. A case of phosphorus poisoning with marked liver changes and leucin crystals in the urine gave a high resistance probably on account of the high fat content of the serum. Number 31, a patient upon whom a splenectomy had been performed four years previously on account of a gunshot wound showed a normal resistance. Nothing especially need be said about the group of pernicious anemia, except that the low fragility figures correspond closely to what others have found in this disease.

The relation of urobilinuria to fragility of red corpuscles is an interesting one, but for various reasons difficult at the present moment to analyze. Urobilin (and urobilinogen) is found in practically all of these cases of hemolytic icterus in

the urine in increased amounts and probably is due to the blood destruction. It is not present in the blood serum. Bile may or may not be present in the serum in detectable amounts. Of the two cases of hemolytic icterus observed, one showed bile in the serum in small amounts; this was not constant. Neither showed urobilin or urobilinogen in the serum. However, in both, the serum had a characteristic lemon or canary yellow color which was very noticeable even when greatly diluted in the citrated or washed blood. If this were bile or urobilin one surely would expect to get strong positive tests for these bodies constantly; whereas, the test is negative or at times only faintly positive. Others have noted this, as for example: Thayer and Morris,[2] who in one of their two cases, noted bile though the serum of both was very yellow. We have also noted this in other cases, for instance, in a case of syphilitic cirrhosis (No. 15). Here, likewise, a large amount of urobilin and urobilinogen appeared in the urine.

Apparently no explanation for this appearance of the serum has been given. That it is in some way associated with the blood pigments there is little doubt. It is possible that it may be dependent on a disturbance in the fat or fatty acid content of the serum which occurs in these cases, as has been observed by King.[3] It is more probable that urobilin in the blood and tissues exists in an oxidized form and does not in this condition give the usual tests for urobilin. This has been practically demonstrated by Roth and Herzfeld[4] and by Schlesinger, who found that urobilin added to blood or to serum plus red corpuscles rapidly disappeared, whereas if added to serum without red corpuscles it did not disappear. They, therefore, conclude that in blood the urobilin exists probably in an oxidized state. It is interesting that in the last stages of lobar pneumonia urobilin occurs in the blood with great constancy, as shown by Connor and Roper.[5] Roth and Herzfeld have tested the ability of the kidney tissue to produce or create urobilin from serum which did not show it previously. The attempt was distinctly successful in one case.

2. J. H. H. Reports, 1911, 22, p. 88.
3. Archives of Internal Medicine, 1914, Vol. 14, p. 145.
4. Deutsche Med. Woch., 1911, XLVI, p. 2129.
5. Arch. of Int. Med., 1909, Vol. II, 532.

The recent observations of King referred to above have a very distinct bearing on the basic problems underlying the different clinical conditions mentioned above. In all apparently the blood destruction is excessive, thus accounting for the anemia and icterus. King found that in this group of diseases there is a marked disturbance in the normal relation of fats, cholesterin bodies, and unsaturated fatty acids. Fats and cholesterin are anti-hemolytic, as is well known; the fatty acids, on the other hand, are strongly hemolytic. In pernicious anemia he finds a very high content of unsaturated fatty acids and also a high content of fatty bodies. The fatty acids may explain increased blood destruction and the increased amount of fat in the blood may explain the increased resistance of the red blood cells. In hemolytic icterus the fatty acids are markedly increased, but the fats are normal or reduced in amount. This might explain the blood destruction and also why we have normal or increased fragility of the red corpuscles. Furthermore, splenectomy in both dogs and human decreases the amount of unsaturated fatty acids in the blood and increases the fat content, thus tending to correct the disturbances mentioned in the above diseases. These facts King uses to explain the good results obtained by splenectomy, not only in hemolytic icterus but also in pernicious anemia and in other conditions where the spleen is involved. It may be doubted whether this explanation will cover all the facts and whether pernicious anemia will yield to treatment by splenectomy. But what seems to be a real contribution to this subject is a recognition of the fact that there exists a close relation between the spleen, the fat and fatty acid content of the blood, and this group of diseases including pernicious anemia, hemolytic icterus, and probably splenic anemia.

From the above data and discussion a few points stand out which may be summarized as follows:

The fragility of red corpuscles in hemolytic icterus is normal or appreciably increased; in obstructive jaundice the fragility is quite uniformly decreased.

This difference may be of aid in differential diagnosis.

In pernicious anemia the fragility is regularly decreased.

FOLLICULAR TONSILLITIS IN ITS RELATION TO SYSTEMIC INFECTIONS.*

L. EDWIN BARNES, M. D.,
CHICAGO, ILLINOIS.

This condition of the faucial tonsils may be an entirety of itself or it may be one stage in other forms of tonsillitis.

It may be well to give a macroscopic description of the tonsil and the chain of lymphatics involved in an infection of it.

The faucial tonsils have 10 to 15 crypts lined with squamous epithelium which is continuous with the epithelium of the throat. Drainage from the tonsils into the throat is poor at best, for the reason that the crypts are branching and frequently intercommunicate in the depths of the tonsil. In submerged tonsils some crypts are entirely covered over.

The lymphatics of the faucial tonsils empty into the superficial cervical glands, while the adenoid lymphatics pass through the postpharyngeal glands to the deep cervical glands and together the superficial and deep lymphatics empty into the thoracic duct. The cervical lymphatics communicate with the lymphatics of the thyroid gland and the pleura.

At the present time, no afferent lymphatics leading to the tonsils have been shown, although experiment would indicate their presence. Lexer injected inert coloring pigment into the turbinates of the nose and found them later in the tonsils. Henki found the coloring matter in the tonsils after injecting it into the gums.

Wood and Grober are not agreed on some minor branches of the lymphatics, although both have found the larger chains as stated.

It is almost unnecessary to state the symptoms, as all of you see as many or more of these cases than the specialist does, so I shall mention them briefly.

The acute stage of follicular tonsillitis is commonly described by the patient as "catching cold with a resultant sore throat." At the outset most sore throats look similar in appearance except the diptheritic, and often this looks like the others. In a short time, from a few hours to a few days, the condition develops to a stage where it can be differentiated in most cases.

The symptoms set in suddenly, attended by malaise and fever. Chills or slight rigors frequently are present. The temperature gradually rises to 102 or 103. It may reach this elevation in 12 hours or may be not for 72 hours (three days). At first deglutition is accompanied by soreness which becomes painful as the disease progresses. The inflammation extends to the pharyngeal mucosa, and sometimes to the eustachian tubes and the middle ear, with earache and tinnitis. The gland under the angle of the jaw is usually swollen and tender because of its physiological activity in its attempt to check the invading host of bacteria which have passed through the epithelial walls of the crypts of the tonsils.

The swollen condition of the tonsil and surrounding tissues renders motion of the head painful; it also interferes with articulation and phonation.

The tongue is coated with a yellowish or brownish fur. The breath is fetid and offensive.

The acute stage seldom lasts longer than four days, but in this time it has considerably weakened the patient.

The foregoing are the subjective symptoms. Now we come to the objective findings (or what the doctor sees).

When the patient comes to us or we are called to the home, we find the tonsil swollen and red, the crypts may not have reached that characteristic yellow furred appearance, especially in the central posterior portions of the tonsils. The surrounding pharyngeal tissues are redder than normal. Later the tonsil and the surrounding tissues are more swollen and a creamy discharge is seen extruding from the mouths of some of the crypts. The patches are not true membranous products as found in diptheritic and pseudomembranous inflammations, but are the debris and secretions that fill the crypts.

Sometimes a fibrinous exudate is mixed with the debris which gives it the characteristics of an inflammatory membrane.

The debris and exudations can be easily wiped away, which is not the case with the diptheritic membrane. A diptheritic membrane may resemble the follicular type in 12 or 24 hours after the use of antitoxin.

It may not be out of place to mention the differentials of acute follicular tonsillitis to diphtheria.

*Read before the Englewood Branch, Chicago Medical Society, January, 1916.

Follicular Tonsillitis	Diphtheria
1. Onset marked by sharp rise in temperature.	1. Onset, rise in temperature gradual.
2. Rapid bounding pulse.	2. Pulse slow and feeble.
3. Depression not marked.	3. Marked depression.
4. Exudate limited to tonsils, especially crypts.	4. Exudate extends beyond tonsils, not limited to crypts.
5. Exudate not adherent.	5. Exudate adherent.
6. Exudate soft and friable.	6. Exudate firm and leathery.
7. Exudate not distinctly membranous.	7. Membrane may be removed in strips.
8. Swollen glands uncommon, except in severe cases.	8. Swollen glands common even in mild cases.
9. Occasional albuminuria.	9. Albuminuria common.
10. Klebs-Loffler bacillus absent.	10. Klebs-Loffler bacillus present.
11. Vincent's angina (diphtheroid) inflammation and ulceration in one tonsil, without fever, caused by the bacillus fusiformis.	

If the inflammation persists after the faucial tonsils have cleared up an examination of the pharyngeal and lingual tonsils should be made, as these often are infected similarly and often simultaneously with the faucial tonsils. These can only be examined by the laryngeal mirror, consequently they are usually overlooked.

The toxins eliminated from the crypts and tonsils and reaching the circulation must be eliminated to a degree through the kidneys, hence a frequently complicating nephritis.

Dr. Campbell, in Montreal Children's Hospital, found acute tonsillitis complicated by albuminuric nephritis in 3.5 per cent. of cases and in 90 per cent. found casts; of these 96 per cent. cleared up when the tonsillitis did.

Dr. E. H. Parker, Minnesota, reports cases of acute tonsilitis followed by acute nephritis, chorea, endocarditis, pleurisy, neuritis, osteomyelitis, septicemia.

Personally I believe that many of the past writers have grouped all of these symptoms and called them rheumatism.

In 1910, Dr. Loeb said that acute nephritis results from acute tonsillitis far oftener than is generally believed.

Dr. F. Theisen (*Albany Medical Journal*, 1913) reports six (6) cases of acute thyroiditis following tonsillitis.

Dr. Ben. Witt Key states that many cases of phlyctenular conjunctivitis are complications of acute tonsilitis.

Dr. N. L. Wilson repors four cases of acute nephritis, four rheumatic fever, following acute tonsillitis, one nephritic died of septic endocarditis.

Dr. Wilson also reports acute pneumonia, appendicitis, orchitis, and interstitial keratitis from acute tonsillitis.

Dr. J. C. Beck reports as complications acute suppurative ear conditions, also apparent suppuration in the bladder and uterus.

Dr. H. J. Davis (London, Eng.) reports a case of acute tonsillitis, left side with fatal caverous thrombosis, left side, by way of facial vein. Fatal in 18 days.

Dr. Philip K. Brown states that peri-myo-endocarditis, arthritis, chorea, neuritis, pleurisy, tuberculosis, iritis, phlebitis, osteomyelitis, Hodgkin's disease, forms of leukemiare, complications following acute tonsillitis.

Dr. Dick and Burmeister report asthma, convulsions and true epilepsy following acute tonsillitis.

Dr. Keef's case, a child, aged six years, had pleurisy and double mastoiditis following acute tonsillitis.

Dr. O. T. Freer mentions nervous cough as an after math.

Dr. W. L. Ballenger, in his paper entitled "Route of Pulmonary Infection," refers to Grober's Experiments and is firm in his assertion that systemic and glandular tuberculosis is frequently caused through the tonsil, thence to all parts of the body.

Dr. E. Fletcher Ingals, in his paper before the American Climatological Association (1913), sustains the views of Jonathan Wright and emphatically states, "I do not believe there is any relation between tonsillitis and pulmonary tuberculosis."

Dr. L. Fischer, paper on Gastric Fever and Acute Tonsilitis, believes that the vomiting when present is caused by impinging of tonsil on the pharynx, thereby irritating the pharyngeal wall

with resultant nausea and vomiting not of gastric origin.

Dr. C. C. Biedert reports a case of acute follicular tonsillitis with involvement of the lingual tonsil causing cough and lingual varix with hemorrhage, which is not pulmonary, as is often supposed.

Dr. C. Verdele of Bordeaux, France, reports two cases of acute bilateral tonsillitis complicated two days later by appendicitis.

The writer has had one case of earache and partial deafness after acute tonsillitis which did not clear up until the tonsil was enucleated one month later. The adenoids were removed previous to this tonsil infection.

One case of acute right unilateral thyroiditis three days after onset of acute tonsillitis.

One case of Ludwig's angina at the same time as the acute tonsillitis.

Three cases of arthritis (commonly called articular rheumatism). The addition of high frequency electric modality, with the salines and salicylates gave quicker results in my series of cases.

6860 South Halsted street.

A PRELIMINARY REPORT ON "GRADUATED EXERCISE" AS INAUGURATED AT THE COOK COUNTY TUBERCULOSIS HOSPITAL.*

H. H. Bay, M. D.,
Attending Physician.
OAK FOREST, ILL.

It has become a recognized fact that pulmonary tuberculosis is one of the most curable of any of the chronic diseases, when recognized early and properly supervised.

It is also well recognized that this disease, by virtue of the chronicity of its processes, as well as the long months of enforced idleness necessitated thereby, produces yearly a vast number of persons incapacitated for their support or that of their dependants.

One of the best-known physicians in the Municipal Tuberculosis Sanitarium Dispensary service said on his visit to Oak Forest: "When are you going to quit sending us so-called apparently arrested cases, which go to work and we return them to you with a recrudescence inside of three to six months?" Another remark we have heard from a similar source is "Stop sending us fat paupers."

The house physician of one of the largest retail drygoods houses in the Chicago downtown district once made the remark that "We take great pains in having our employees, who contract pulmonary tuberculosis, placed in a sanitarium and then consider our obligation fulfilled; we don't want them back after they are discharged, for they are either unfitted for work on account of their prolonged and enforced "rest," or they soon break down and must be returned to the sanitarium."

There are unquestionably a large number of so-called active cases of consumption, who are daily attending to their occupations, without seeming in the least to affect their endurance or the quality of their work; many, perhaps, being entirely unconscious of any disease being present.

The condition of the lungs per se, even in the presence of a positive sputum finding, is not sufficient data upon which to estimate the degree of activity, render a prognosis, nor to estimate the resistance.

A small area of tuberculous disease may mean great intoxication with resulting incapacity for work or a large area may be almost unnoticed by the patient; and the latter case may go on for years in apparent good health and perhaps die of another condition before the tuberculosis was even suspected.

To Sir Almroth Wright of England we must lay the credit of the impetus given to the study of the relation of pathogenic organisms and the elaboration of curative toxins. He says "No one recovers from an acute or chronic bacterial disease unless it be by the production of protective substances in his organism."

On this theory, it is obvious that prognosis depends upon the capacity of the organism to develop those specific protective substances which are always the product of the peculiar reaction to the stimuli furnished by the infecting agent itself.

The acute or active stages of the disease may be explained by the entrance into the blood of overdoses of toxines, manufactured at the seat of infection, preceding the elaboration of neutralizing substances.

*Read before the Lake County Medical Society, Feb. 10, 1916.

Fig. 1. Graduated Labor class building cinder walks at Oak Forest.

It has been found by long experience that patients with acute manifestations of tuberculosis are much improved by rest in bed; that having attained a normal temperature, and other evidences of improvement, they may, if permaturely allowed to get up and move about, quickly relapse with a return of the acute symptoms.

These phenomena have led to the principle of "controlled auto-inoculation," or a system of "graduated exercise"; using the patients' own organism for the elaboration of protective substances for the neutralization of the infection from which he is suffering.

It has been found that by a careful regulation of rest and exercise, auto-inoculation may be very accurately measured and controlled, and in cases in which this is possible, it may be employed with inestimable advantage in the treatment. It has been further found that when auto-inoculation cannot be controlled, a fatal termination is inevitable.

With the subsidence of fever and other manifestations of activity, "graduated exercise" is commenced. Walking has been used for many years, and it has been found that those patients who attained the higher grades of exercise improved more rapidly and permanently than those who remained for long periods in the lower grades.

It remained for Doctor Paterson, of Frimley, England, to offer a satisfactory explanation of the real value of exercise. He, it was, who found that there was a definite relationship existing between auto-inoculation induced by exercise and the condition of the patient as shown by Wright's opsonic index, body temperature, weight and the character and quantity of the sputum. All of the advantages formerly recognized as the result of exercise could be explained on the theory of active immunization, effected by the introduction of slowly increasing doses of toxine derived from the focus of infection and elaborated in the patient's own body.

Wherever Paterson's principles have been rigidly followed, it has met with success exactly according to the principles upon which it is based. Where the economic side is foremost in requiring labor of tuberculous patients without comprehending the dominant function, viz.: the production of auto-inoculations of specific toxines, the system is doomed to failure.

Paterson has shown that the effects of treatment may be very accurately gauged by its influence upon, (1) temperature; (2) sputum; (3) patient's feelings; (4) weight; (5) appetite. These are quite similar to the guiding signals in tuberculin treatment, and, needless to say, where graduated labor is carried out accord-

ing to Paterson, tuberculin treatment is discontinued.

Where the stimulus of auto-inoculation is insufficient there tuberculin is indicated.

With increasing exercise the patient must be constantly supervised, and familiarized with the danger signals of an "overdose." A failing appetite, malaise, or loss of weight, especially when subnormal, are significant symptoms and frequently appear before temperature rise or increase of sputum. They are indications for a reduction of exercise or a return to rest. A rise of temperature which does not fall to normal after thirty minute's rest, and a marked increase of sputum, or a distinct change in its character towards purulency, with increase of cough, are also indications for rest.

Paterson considers a mouth temperature of 99° in the male and 99.6° in the female, after thirty minutes' rest, if attended by headache or malaise, an indication for absolute rest. Our experience has taught us that women patients with a temperature of 99.2° are in the same relative condition as men with temperature of 99, and should be on rest when that temperature is reached. Temperature should be very closely watched, and for this purpose individual charts should be provided and a daily record kept. The patient should be instructed in the taking of his pulse and temperature, and the keeping and recording thereof on his own chart.

Hemoptysis usually gives no trouble. Hemorrhages will occur but usually not during the exercise period, and it is difficult to say that they are caused by the exercise or that they occur more frequently in exercise cases than in those not in these classes. Our experience has been that blood spitting is more common in the lower grades, or those on no exercise, than in the higher grades. Should it occur, the patient should be placed at absolute rest until the bleeding ceases, when he is immediately placed back in the grade which he left. Slightly tinged sputum need not interrupt the treatment.

The Cook County Tuberculosis Hospital at Oak Forest, Illinois, is probably the first institution that has had graduated labor patients do the menial work of the institution, under strict medical supervision. Sweeping, scrubbing, window washing, cleaning of bath tubs and toilets, woodwork, etc.; carrying in coal, together with the digging and moving of a clay bank and the building of cinder walks, and clerical work on charts and in laboratory are some of the occupations of the men, alternated with walking from fifteen minutes to two hours once or twice daily. The women do cleaning of woodwork, sinks; polish brass, sewing, crocheting and knitting and mending; clerical work on records and in laboratory, besides walking prescribed distances.

Our plan consists in the following, viz.: After the patient has been in the institution at least

Fig. 2. Graduated Labor class starting on a "hike."

two weeks and is making his own bed, going to the dining hall, and walking fifteen minutes twice daily, he is sent to the Cottage Department. Here he is instructed in the use of his thermometer, in taking his pulse and the recording of same on his chart. He is also told the danger signals of an "overdose," and instructed that should he have a headache, malaise, chest pains, a temperature of 99°, or any other untoward condition that *he* might consider a sufficient reason, he is to go to bed and notify his nurse. He is not to resume his exercise until same is again prescribed.

After these instructions he is on "rest," that is, lies down, or sits in his sanitarium chair three days, but is allowed to take his meals in the dining hall. After three days (with a normal temperature), he is given fifteen minutes walk in the afternoon, increased three days later by fifteen minutes walk in the morning. After he has been on thirty minutes' walk for six days he is given, in addition, fifteen minutes light cleaning, and this, or the walk, is increased five minutes every third or fourth day until he is doing two hours light cleaning in the morning, and one-hour to one and one-half hours walk in the afternoon, when in addition he enters the "bucket brigade," or sweeping or mopping gangs. In the "bucket brigade" he carries (on the present piece of work) 10 pounds of clay, 5 trips, 75 feet, increasing one daily to 35 trips, when he is given an ordinary light shovel and helps fill the buckets for his companions, commencing thirty minutes a day and increasing five minutes a day. The patients are instructed to carry one bucket with one hand and alternate with the other.

This plan of work is original in this institution, and every sanitarium must work out its own problem, based on the kind and character of the patients and the work that is available.

We have found our patients very co-operative. Have had no complaints worth mentioning, and believe tact and a thorough understanding between medical adviser and patient is all that is necessary to devising a working plan and carrying it out.

It is our policy to have the work consist of something that is constructive, that is, that there is a reason for the labor—that something is being accomplished. Digging and carrying buckets of clay from one pile to another and then digging and carrying it back again is not conducive to stimulating content among the workers. Walking around a stated path time after time, day in and day out, is not the way to get co-operation. Our patients are digging away at an unsightly clay bank and filling a gaping hole at the end of one of the cottages. They are walking on the country roads with a nurse or appointed captain, who acts as a monitor. They have built a toboggan slide on a side hill, and the zest and enthusiasm manifested in all of these undertakings is certain of great satisfaction to those in charge. Furthermore to have patients cheerfully arrive at the higher grades of labor, say five or six hours daily of heavy work, something of immediate return or compensation should be provided. Recreation in the form of walks, games, etc., and the presence of the physician working with them proves a great incentive to the continuation of the exercise. Patients, like other human beings, do not like to do something arduous and get nothing in return. The illusory promise of a cure in the dim distance does not take the place of recreation or a cash payment perhaps that he gets *now* and that he may enjoy *now*.

Some institutions have a fund from which patients who are doing more than three hours work are paid. The three hours pays for his institutional care and keep; the extra work done he gets cash for. This is a splendid idea. It not only keeps the patient in the institution longer, thereby perhaps instead of sending him out a "quiescent" we send him out "apparently arrested," but he takes to his work more cheerfully and malingering is at a discount. Furthermore many of our cases are not able to do eight or ten hours work daily, but can do four or five, and it is better from all aspects to have the patient in the institution paying for his keep than to go out where there is no market for the three, four or five-hour-a-day man, and become an object of charity, overwork himself or perhaps become a law breaker. Graduated labor fills in the interim between the subsidence of the fever, and other active symptoms, and the time when the patient is ready to resume his occupation—which is always a restless period for the enterprising patient; it not only prepares him for work, but demonstrates the vital reserve or power for work in the individual. As one physician has put it very

aptly, "it not only shows up how much work he can do, but how little he can do."

Prescribing of medicines has been practically discontinued. With the exception of an occasional cathartic, or sinapism we may truthfully say that we seldom find necessity for resort to drugs.

With increasing appetite and weight, due to the increased vigor of our patients, we have a striking picture of contentment and satisfaction throughout the exercise classes. We scarcely ever have a complaint about the food. And this is particularly noticeable among the young women, who as tuberculous patients, are notoriously poor eaters. It requires an appetite to enjoy food, and with their time occupied in useful work they eat their meals with a relish which is marvelous, when compared with patients in our other departments or in the same department before this system was placed in vogue.

The successful treatment of pulmonary tuberculosis cannot be carried out in the home; neither can tuberculin treatment nor graduated exercise be successfully inaugurated and scientifically prescribed outside of the well organized, well equipped and well manned sanitarium. With this powerful remedy of graduated exercise, or controlled auto-inoculation, we are gradually and carefully bringing our patient up to his full capacity for work, so that when we discharge him we know positively that he can do the equivalent of the amount of work outside of the institution that he did while resident there, providing he has the proper food, air and rest. The way he spends the fourteen hours between quitting time and morning will have more to do with his continued good health than the ten hours in which he is laboring.

Two processes, one destructive, the other beneficent, are constantly at work in every case of pulmonary tuberculosis. The destructive process is manifested in the infiltrated, consolidated and excavated areas; the beneficent, the connective tissue process which is nature's method of walling off the diseased from the healthy lung tissues. Meanwhile the stimulus of the toxines thrown off by the bacilli is developing antibodies which are endeavoring to neutralize these destructive toxines. In other words, developing an immunity to them.

Baldwin of Saranac Lake, insists that there is no immunity to tuberculosis, but merely an increased tolerance. But be that as it may, we do know that we have curable and cured cases, and that our success dates from the time when we inaugurated the principle of using the proper methods, kinds and doses of rest, food, fresh air and regulated exercise. Graduated exercise limits the destructive process and hastens the fibrosis. It supplants the use of tuberculin and the dose of auto tuberculin is far easier controlled. It is also far more potent in being elaborated from bacilli which are from the strain with which the patient is afflicted, and it is from live bacilli instead of dead from which all stock tuberculins are derived.

You have cases of known pulmonary tuberculosis in your private practice who are at work, who cannot, for various reasons, be sent to sanitaria. Certain ones feel that they cannot give up their incomes, others cannot be prevailed on to leave their homes. You can do much for this class of patients by regulating and prescribing their diet and supervising their working conditions, such as seeing that their working quarters are well aired, well lighted and clean. Have them keep charts recording their pulse and temperature on getting home from work, rest half an hour and take and record them again; then allow their regular meal. Prescribe their recreation and rest, and remind them that it is not the time they spend in the shop, but how they spend the fourteen hours outside the shop that causes a break-down.

Follow up the quiescent and arrested cases discharged from the sanitarium, using the same or a similar plan, and you will be doing much toward lowering the percentage of dependants, which are now so numerous as a result of having, or having had, this most widespread and debilitating disease.

Avoid the usual criticism of the modern treatment of pulmonary tuberculosis that we "Pauperize the Patient," and instead with medical supervision return him to a working efficiency.

My thanks are due to your former fellow townsman, and our esteemed head physician, Dr. W. H. Watterson, also to Senior physician, Dr. John W. Turner, both of the Cook County Tuberculosis Hospital, Oak Forest, Illinois, for many valued suggestions, and to Marcus Pater-

son of Brompton Hospital Sanitarium at Frimley, England, and Herbert Maxon King of Loomis Sanitarium, Liberty, N. Y., and S. G. Bonney, Denver, Colo., from whose writings I have freely drawn.

A BAD STOMACH AND ITS INTERPRETATION.*

W. F. GRINSTEAD, M. D.,
CAIRO, ILL.

My justification for bringing this commonplace subject to your attention is the fact that every one of you have from one to a half-dozen of these cases under treatment right now.

Some of them have been ill so long and have made their melancholy plea for relief so often, and in vain, that you almost hate to see them come to the office.

You have given every remedy you have heard of or have read of and don't know what else to do. You have called the case indigestion, dyspepsia, catarrh of the stomach, all of which mean the same thing. Some of these patients who have an occasional paroxysm of acute pain have been told that they had bilious fever or neuralgia of the stomach. You have been embarrassed when asked if there was no cure for it.

Now let us glance at some of the commonest causes of this common complaint and see if we can find a more satisfactory answer to this question than we have been offering.

In the presence of such a case let us first think of direct and reflex pathology. As direct pathology we may admit occasional cases of gastric catarrh due to over-eating, or drinking, or the ingestion of unsuitable or improperly prepared food. These, however, are not obscure. Next let us think of ulcer of stomach and duodenum.

After these let us recall some of the common reflex pathology. We may think of the gall bladder, the appendix and the kidneys. It is a habit with me to recall the etiology in the form of a quadruple, omitting the more easily demonstrable causative elements of errors of food and drink and disorders of the pelvic organs of females. The quadruple is as follows: Cholecystitis, gastric ulcer, pathologic kidney and appendicitis. After this quadruple has been carefully considered and excluded, there remain only the rare or less frequent etiologic factors. One of these infrequent gastric crises was the cause of my undoing years ago, when I made a most humiliating blunder in diagnosis. It proved to be the gastric crisis of locomotor ataxia. I recently reported the instance to a district medical society in Kentucky to sound a note of warning to my confreres. We get less benefit, however, from the consideration of these rare and exceptional problems than we do from the regularly recurring cases in our daily rounds. The latter shall be the burden of what I should like to discuss briefly today.

It is unfair to these patients to pass them along from week to week and month to month and even year to year under the easy subterfuge of indigestion, etc. They are disabled, miserable and often in danger. Instead of being hopeless incurables, the great majority of them are perfectly curable and can be made comfortable, useful and happy by careful investigation and proper treatment. Let us return to our pathologic quadruple and let us omit from detailed consideration the kidney feature which has less to do with a bad stomach than the other three. It must always be kept in mind, however, for diagnostic purposes. Naturally enough one looks to the stomach for an explanation of stomach symptoms. When a patient puts a finger on the stomach and says there is where the pain is, we are not inclined to look elsewhere for the disease. This fact is often the cause of our undoing.

Inflammation in the gall bladder causes a bad stomach and thousands of stomachs are under daily treatment and starvation diet that are not diseased at all. Gall bladder disease has established an alibi in the minds of the physicians as well as the patients. I have made the mistake myself, but since I have grown more or less wise to disguised phenomena by accumulated observation I have often observed other medical men going astray on the same road. I have said bilious attack and neuralgia of the stomach, when I didn't know I was lying to my patient. I hadn't traced the history of the case nor made a detailed examination of the patient or I just couldn't get my head turned around to the viewpoint which made the case show plainly. I couldn't budge from my first viewpoint when I should have walked all around to every viewpoint. Most any man of ordinary information can make a diag-

*Read before annual meeting, Southern Illinois District, Medical Society at Harrisburg, Ill., Nov. 5, 1915.

nosis of a patient who has typical and repeated attacks of gall stone colic. In fact, this is the most reliable symptom of gall bladder disease, but it is sometimes absent. At other times the symptom disappeared so long ago that the patient has forgotten it and we must pump it out of his history through him or some member of his family. Late years I have had numerous consultations with men in general practice and when I tell them that I attribute the stomach symptoms to gall bladder disease they promptly inform me that the patient has never had jaundice. When I declare to them that jaundice is not a symptom of gall stones or cholecystitis they have sometimes stared at me. Jaundice is a symptom of disease or obstruction of the ducts and not of the sac. Rigidity and tenderness over upper right rectus often assists us in making out gall bladder disease. A third symptom is the radiation of the pain to the right, passing under the right shoulder blade. It is rare for it to radiate to the left. A special character of the pain, if stones are present, is its sudden onset and its termination as suddenly. These are due to the lodgment in and subsequent liberation of a stone from the cystic duct. From actual disease of the stomach, gall bladder disease can often be distinguished by the pain showing no connection with food. These patients will be seized with pain when the stomach is empty. I have had them report attacks before meals and at three or four o'clock in the morning. Gall bladder cases are often well nourished, even fat, as distinguished from the lean, starved appearance of the patient with disease of the stomach. These cardinal symptoms of gall bladder disease, if kept fresh in our minds, will usually keep us from treating healthy stomachs for supposed disease.

Observation of histories and symptoms of a large class of bad stomachs, when followed to the operating table, have proven positively that they are due to disease of the appendix. Several years ago I heard C. H. Mayo explain in his clinic the *modus operandi* of this class of bad stomachs in an impressive way. He said that food poured into the cecum irritated a pathological appendix and caused pain. The appendix, thus distressed, wired up to the pylorus through the nerve supply, not to dump any more of its chyme down onto it. On receipt of this notice the pylorus contracts, the stomach cannot empty itself. Hypersecretion, fermentation, irritation, distention, hyper-peristalsis, eructations, a bad breath, coated tongue, gastric distress follow.

A multitude of these patients are treated for months and years for indigestion until a sudden, acute attack of appendicitis makes the case as plain as letters on a box car. The patient then dies from septic peritonitis or is operated on and saved by the surgeon and the dyspepsia is cured. How can we detect these cases early, apply the proper treatment, protect the patients from danger and terminate the invalidism? First, let us inquire for pain at intervals elsewhere than the upper abdomen. Ask the patient to put a finger on the region of pain. Then let us palpate the entire abdomen gently for tenderness and indurations. If the patient flinches when pressed over the appendiceal region, or if we find rigidity of the lower, right rectus muscle, these facts are suggestive. They are below the level of the navel. Pain and tenderness and rigidity at the upper right rectus would suggest trouble with the gall bladder or duodenum.

Some of these appendiceal patients will complain of pain about the navel because the nerve supply to the appendix comes from the same source as the nerve supply to the mesentery. The appendix is sometimes down in the pelvis when the pain will be misleading and this possibility must be kept in mind. In doing a radical cure operation for hernia I recently found the appendix in the scrotum. An appendicitis in this patient would probably have not been correctly diagnosed. A renal colic may be confused with an appendiceal colic or a hepatic colic, but the pain usually starts in the loin and radiates to the bladder, testicle or ovary. The tenderness will likely be below the right short rib. A urinary test will help out the diagnosis. In females I have had diagnoses of appendicitis brought to my clinic when the trouble was clearly in the fallopian tube. There is little excuse for this error for the history of these cases points so directly to pelvic disease and a bimanual examination so readily demonstrates the pathology that no question is left. I have several times found a pus tube firmly adherent to the appendix. These are cases of appendicitis by contiguity. The swelling in and about the tube had pushed it up against the appendix and the infection was communicated by contact. One physician who brought a case of

this kind was much elated to find his diagnosis of appendicitis verified.

Now let us turn our attention to bad stomachs, which have real gastric pathology. I sometimes think that the healing art has brought more comfort to afflicted humanity through the study and treatment of the diseases that manifest themselves conspicuously in bad stomachs than any other field of therapeutics. Most of the best of this work has been developed during the last third of a century—one generation of mankind.

The treatment of direct gastric pathology requires the most painstaking differentiation from the reflex gastric phenomena already considered. about half the bad stomachs are medical and about half surgical. Myriads of blunders have been made by applying surgical treatment to medical cases. The Mayos have cut off more than a hundred gastro-enterostomies which had been done for supposed gastric or duodenal ulcer which did not exist and which of themselves were producing distressing symptoms. Some of these gastro-enterostomies had been done by themselves in their earlier work. Atonic dilatations, gastroptoses, and the so-called gastric neuroses, which may be accompanied by dilatation of duodenum, jejunum and sometimes part of colon are medical cases.

Gastro-enterostomies do them no good and sometimes do harm. Gastro-pexy has not met the hopes of its advocates. Nobody seems to know what gastric neuroses are. Acute ulcer of the stomach is a medical condition. Chronic ulcer and carcinoma are surgical diseases and the sooner they are referred to the surgeon the better for the patient. It is not the purpose of this paper to discuss the modern methods of medical or surgical treatment of bad stomachs. It is intended to classify some of them and to point the etiology that underlies each class and also to group the symptoms that serve to identify each class. Neither shall I attempt to differentiate between gastric and duodenal ulcer. The expert diagnostician, Christopher Graham, says "the chief difference arises from the degree in which the characteristic symptoms are manifest." These symptoms are pain midway between the ensiform cartilage and the navel, elicited by pressure and by food. Hemorrhage often appears in the stools or vomitus. In chronic cases we observe symptoms of obstruction. This is best demonstrated by the x-ray and bismuth test. Distortions from cicatricial contractions are also shown by this test.

Emaciation results and is due mainly to a starvation diet which the patient adopts to escape pain. The relation between food and pain is one of the important diagnostic symptoms of gastric ulcer. It usually appears from one to three or four hours after taking food. In some cases the ingestion of food gives temporary relief from pain. This is especially true if the duodenum is involved. These patients will often get up at night and eat something or drink a glass of milk to stop pain. Later this food causes the return of pain. Hyperchlorhydria is another recognized symptom and we find patients using quantities of soda or calcined magnesia to neutralize the acid. The intermittent character of these symptoms is characteristic and yet in a sense misleading. Patients are supposed to be cured when, in fact, they only have an intermission. I have heard Dr. W. J. Mayo say that gastric ulcers had to be cured nine times by the physician before they were finally referred to the surgeon. This delay is dangerous, because the evidence is growing that chronic gastric ulcer is a frequent cause and forerunner of carcinoma. There is no known method of differentiating chronic ulcer from carcinoma early enough to save the latter by surgical intervention. Even at the operating table early cases of carcinoma cannot be diagnosed without the help of the microscope.

I believe it can be safely accepted as a therapeutic doctrine that medical treatment does little more than secure intermissions in the course of chronic ulcer; but that surgical treatment is curative with few exceptions.

The Mayos declare that gastro-enterostomy for the cure of chronic ulcer, is one of the best operations in surgery. In about 16 per cent of these cases, however, there are complications, such as gall bladder, appendix, tuberculosis, tumor, etc., and these possibilities, including adhesions and distortions, must be kept constantly in mind at the operating table to insure a cure for our patients.

The day has past when the operating surgeon is content to close an abdomen, after having treated the most prominent lesion, without more or less exploration of the viscera for other pathology that may defeat a cure.

CONCLUSIONS:

1. Atonic dilatation is a medical condition.

2. Gastroptosis may be improved by such operations as Beyer's or Rovsing's, but is practically a medical condition.

3. Gastric neurosis, whatever it may be, may have a surgical feature in its etiology, if we can find it, but remains with the medical division.

4. A bad stomach, due to gall baldder disease, is a surgical condition and quite curable in the absence of complications.

5. A bad stomach, due to appendicitis is a surgical condition, quite curable if given the right treatment at the right time.

6. A bad stomach, due to ulcer, is a medical condition, if acute; but a surgical condition if chronic and offers a good field for curable therapeutics in both divisions.

7. A bad stomach, due to carcinoma, is not without hope if we do not waste too much time before applying the only remedy which is radical surgery.

REMOVAL OF TWO NAILS FROM BRONCHI IN CHILD TWO YEARS OLD.*

R. H. Good, M. D.
CHICAGO.

A workman while putting up window-shades, left a small box of nails on one of the beds. At three p. m. the mother put the child to bed for a nap, but did not notice the box of nails.

In a few minutes she was startled by a choking sound from the child's room. She quickly entered and found the bed covered with nails and the baby's mouth full of them, which she proceeded to remove.

The mother, however, noticed that the child was not breathing well and in a short time it became blue. She took the patient to a near-by physician and in the act of carrying, the child regained it's color. This cyanosis recurred several times before operation.

Dr. J. W. Tope, who referred the case to me, immediately sent the child to the Oak Park Hospital to have an x-ray picture taken. This revealed two nails about 1-inch long, with large heads, one in each bronchus, with heads down. The heads completely filled the lumen of the bronchi at times which caused the occasional cyanosis. Dr. Tope kept the patient in a tent kept filled with tincture benzoin steam, until the bronchoscopist arrived.

Very little anesthesia was required as the child was partly asphyxiated. The patient was placed in the dorsal position with the head hanging down. A competent assistant held his hand under the neck to alter the position as required by the operator. A nurse supported the head from below.

Brüening's smallest size bronchoscopic tube was introduced until the nail in the right bronchus was visible. A forceps was introduced, grasping the nail and removed by withdrawing the tube with the nail, as the head was larger than the lumen of the tube.

Considerable difficulty was encountered in seeing the nail in the left bronchus on account of some swelling of the membrane, but after applying cocaine and adrenalin together on a swab, I was able to see it readily and could then grasp it with the forceps and remove it.

After removing the first nail the child breathed much better. Twenty-four hours after operation there began to be some difficulty in breathing, due to slight edema of the glottis, but this lasted only for about 36 hours. The patient was kept in the steam tent for two and a half days.

The larynx was sprayed a few times with adrenalin and cocaine; an intubation tube was ready to introduce at any time in case of necessity.

Before operation, the respirations were 66 and the temperature subnormal. After operation there was temperature of about 100 to 101 for four days, after which it became normal, at the end of one week the patient was dismissed perfectly well.

This case is extremely interesting on account of two nails entering the larynx both with heads down. These nails went down separately, as the heads were so large that they could not possibly pass through the trachea side by side. The baby could not have lived much longer as the air from both lungs was shut off.

Several points of importance I wish to emphasize:

First: The necessity of having an x-ray picture taken immediately after the accident.

(*Continued on page 300*)

*Read before the Auxplaines Branch of the Chicago Medical Society.

ILLINOIS MEDICAL JOURNAL

Published monthly by The Illinois State Medical Society, under the direction of the Publication Committee of the Council.

GENERAL OFFICERS 1915-16

PRESIDENT.....CHARLES W. LILLIE, East St. Louis
PRESIDENT-ELECT.....WILLIAM L. NOBLE, Chicago
FIRST VICE-PRESIDENT.....F. S. O'HARA, Springfield
SECOND VICE-PRESIDENT.....H. P. BEIRNE, Quincy
TREASURER.....A. J. MARKLEY, Belvidere
SECRETARY.....W. H. GILMORE, Mt. Vernon
(Ex-officio Clerk of the Council)

THE COUNCIL

District 1—EMIL WINDMUELLER, Woodstock.
District 2—EDWIN S. GILLESPIE, Wenona.
District 3—CLYDE D. PENCE, Chicago.
District 4—AUGUST H. ARP, Moline.
District 5—C. S. NELSON, Springfield.
District 6—C. D. CENTER, Quincy.
District 7—C. F. BURKHARDT, Effingham.
District 8—E. B. COOLEY, Danville.
District 9—FRANK C. SIBLEY, Carmi.
CLYDE D. PENCE, *Chairman*, 3338 Ogden Avenue.

Send original articles and all communications relating to advertisements and mailing list to Dr. Clyde D. Pence, Editor, 3338 Ogden Avenue.

Membership correspondence to Dr. W. H. Gilmore, Mt. Vernon, Ill.

Society proceedings and news items to Dr. Henry G. Ohls, *Managing Editor*, 927 Lawrence Avenue, Chicago.

Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

APRIL, 1916

Editorials

THE ANNUAL MEETING.

On the 16th of next month the annual meeting of the Illinois State Medical Society will convene at Champaign. Everything indicates a good meeting, and, no doubt, it will be. Those who attend will feel well repaid, and will most likely attend next year. The majority of those who will attend this year and next were attendants last year. This fact is encouraging to the officers, and is the one thing which shows the Illinois Society to be a success. More prosperity to those who are loyal and do attend.

Each year the Society attendance is some larger than the previous year, and we predict that this year will be no exception. Perhaps this should be sufficient incentive to the officers and apparently it is, but the fact remains that from a society whose membership exceeds 6,500, and which meets but once a year, only about 800 attend, or, in other words, only about one out of every eight members has loyalty enough for the Society to give up two or three days' business.

Each year the officers of the Society do more work for the Society, always effective, but how much more effective would it be if an attendance at the Annual Meeting would be 3,000, or better still, 5,000, as it should be?

Never before has there been so much work done by the Legislative Committee, and it is showing results; but how much more effective, and how much more energetically could the committee work if the attendance were 4,000 or 5,000 enthusiastic members, showing interest in what was being done?

The Medico Legal Committee's work increases by bounds, and aside from its routine work of defending malpractice cases, it has worked hard to develop a more extensive plan of medical insurance. It would, no doubt, work more cheerfully were it encouraged by a few thousand members at times when a mal-practice suit was not pending.

All of the officers and committees have worked hard for the success of the State Society, and should be encouraged by an appreciative attendance at the Annual Meeting.

The program, printed on page 302, is an interesting one, and not a member of the Society but could be benefited by hearing these papers.

The section on Public Health and Hygiene gave a very interesting program last year and promises better this time. This is the youngest section, but it is becoming popular.

The Eye, Ear, Nose and Throat section has an excellent program that should interest any practitioner of medicine.

The programs for the Medical and Surgical sections are full and promise to be good.

The local committee of entertainment has arranged for the best Champaign can give.

We now appeal to the membership to arrange to be in Champaign May 16 to 18, and assist in making this the best and largest meeting in the history of the Society.

PUBLIC HEALTH SUNDAY AT CHAMPAIGN-URBANA.

The Public Policy Committee, working in conjunction with the Ministerial Union, will hold a Public Health Sunday on May 14th, just prior to the Annual Meeting. This plan was carried out successfully last year, and was very popular. Several speakers are wanted; any of the members who will give a public health talk will kindly communicate with Dr. A. M. Harvey, Chairman,

Public Policy Committee, 836 South Michigan boulevard, Chicago.

ALUMNI LUNCHEON.

Alumni of the Northwestern University medical school will meet at luncheon Wednesday, May 17, at 12:30 at the Country Club, Champaign, Illinois.

CHARLES T. MOSS, M. D.,
Secretary.

CANCER COMMISSION MEETING.

President Lillie announces a meeting of the Cancer Commission, created at the last meeting of the Illinois State Medical Society at the Beardsley Hotel, Champaign, Monday, May 15.

All members of the Society who are interested in the subject of cancer, especially such as have made a bacteriological study of the pathology, are invited.

A NATIONAL BOARD OF MEDICAL EXAMINERS.

In the March number of the ILLINOIS MEDICAL JOURNAL was published a report of a joint session of the Council on Medical Education of the American Medical Association and the Federation of State Medical Boards of the United States, held in Chicago, February 8, 1916. The entire session was devoted to a symposium on "The National Board of Medical Examiners."

That the subject is worthy the time given by any body of medical men, none will deny. There are few questions of more moment to the medical fraternity, and sooner or later, a method must and will be accepted, whereby the certificate of a graduate of medicine, passed by any licensing board of the several states, will be accepted by any other state, and perhaps by the Army or the Navy. The sooner this condition is brought about the better.

There should be uniformity in all examinations for licensure, and these examinations should be of high grade, and free from all question of dishonesty. Just what plan for National Licensure is best, or will eventually be adopted, is difficult to determine, and the medical fraternity should be alive to the subject, and ready to accept and support an efficient method, or to oppose and reject one adverse to the profession.

We do not agree with the statement made by Dr. Rodman, of the impossibility of having a uniform standard when fifty states have licensing boards.

At this meeting the plan proposed was to have a national board—a voluntary organization—to hold examinations for the voluntary applicants, who applied for examination, and those passing such examinations to be given a national license. The board as constituted is to be composed of six members from the Army and Navy and eight others. Just why this apportionment, we do not know.

The Chairman in his opening address stated, "We cannot have a compulsory national board since the police powers are with the state." This statement, we think, is true, and if true, then it is useless talking or working for a national board.

The profession at large does not want a self-appointed voluntary board, examining voluntary applicants. There must be but one method of entrance to the practice of medicine, and that method should in some way admit all licentiates to practice medicine, throughout all the possessions of the United States.

Just why we should have another class of physicians, those licensed by this voluntary board, has not been explained, and the result, if this voluntary examining board comes into existence, will be just one more licensing body, with no actual authority. One reason given for the need of such a board was that we now have too many licensing bodies.

We are heartily in accord with the idea of a Federal licensure, if it is possible to obtain it, or a license from individual states which will be accepted without question anywhere within the jurisdiction of the United States; but whatever form national licensure takes, it must be a legal one; must be mandatory for all practitioners, and must not be a semilegal function performed by a self-appointed few.

ILLINOIS SOCIETY FOR THE PREVENTION OF BLINDNESS.

As we go to press we receive notice of the campaign by the Illinois Society for the Prevention of Blindness in which the medical profession is

expected to play the leading rôle. The JOURNAL has noticed from time to time the activity of Dr. Thomas A. Woodruff and others, who have been actively associated with this movement. The Society has recently secured for secretary Miss Carolyn C. Van Blarcom, who for some years has held a similar position with the national committee for the Prevention of Blindness.

The address of the Illinois Society is 30 North Michigan Boulevard, Chicago.

DR SACHS' FAREWELL.

To the People of Chicago: The Chicago Municipal Tuberculosis sanitarium was built to the glory of Chicago. It was conceived in the boundless love of humanity and made possible by years of toil. No institution was ever planned more painstakingly, or built more honestly. Every penny of the people's money is in the buildings, equipment and organization.

The city council of Chicago should make a most thorough inquiry into the entire history of the institution, and the community should resist any attempt of unscrupulous contractors to appropriate money which belongs to the sick and the poor. Unscrupulous politicians should be thwarted. The institution should remain as it was built; unsoiled by graft and politics—the heritage of the people.

In the course of time every man and woman in Chicago will know how Dr. Sachs loved Chicago, and how he has given his life to it. My death has little to do with the present controversy. I would not dignify it. I am simply weary. With love to all,

THEODORE B. SACHS.

WINE OF CARDUI SUIT.

The suit of the proprietors of Wine of Cardui against the American Medical Association for $300,000 for alleged libel is a subject of interest, not only to the medical profession, but to the much larger class of people who have a taste for liquor and scruples against patronizing an ordinary "gin mill." The numerous witnesses testifying as to the qualities of this medicine are creating such a demand for it that no meal will be complete without a bottle of this alleged wine.

Miss Grace Gilbert, head of the advisory department of the medicine company, testified that she sent out form letters on information taken from the "Home Treatment Book," which was written by A. E. Wheatley, general advertising counsel for the concern. Neither one of these experts is a graduate of any medical school.

Correspondence

CHAMPAIGN COUNTY, THE BIRTHPLACE OF STATE MEDICINE IN ILLINOIS.

To the Editor:

Comparatively few of the present generation of medical men know that Champaign county enjoys the distinction of being the birthplace of State Medicine in Illinois. But such is the fact.

The sixty-sixth annual meeting of the Illinois State Medical Society will be held May 16, 17 and 18, 1916, in Champaign City, the twin sister of Urbana, where precisely forty years before, on May, 16, 17 and 18, 1876, the twenty-sixth annual meeting was held, and during which the urgent need of placing on the statute books a medical practice act and organizing a State Board of Health, was freely discussed and carefully considered. Finally on the last day of the session it was,

Resolved, That a committee be appointed to memorialize the next legislature on the subject of the appointment of the State Board of Health; and with proper modifications the act by which the Board of Massachusetts was inaugurated be submitted to the same as a basis for the Illinois board.

Resolved, That as members of the State Medical Society, each one shall consider himself bound to urge the propriety of a State Board of Health upon the representative from his district.

The memorializing committee was made up as follows: Dr. E. W. Gray, Bloomington; Dr. Wm. Chambers, Charleston; Dr. S. H. Birney, Urbana; Dr. Wm. Massie, Paris, and Dr. E. B. Haller, Vandalia.

The committee did its work well and at the ensuing (1876-7) session of the legislature an approved medical act passed both houses, was signed by Governor Cullom and speedily became a law of our commonwealth.

"There were giants in those days," and in at-

tendance upon the historic twenty-sixth annual session were such men as Drs. N. S. Davis, Edmund Andrews, John H. Holister, Moses Gunn, W. H. Byford, etc., from Chicago; and Drs. T. D. Washburn, A. T. Darrah, E. B. Haller, E. W. Gray, Wm. Massie, J. W. Whitmire, et al., from down state.

But since that day in the long ago time has been busy working its many changes and of the hundreds who participated in the era-making work of the twenty-sixth annual session few, very, very few, remain to tell its story.

From the foregoing it will be seen that from the standpoint of State Medicine, Champaign county is historic ground.

So much for the "dead past." Now a word for the "living present." Champaign county physicians are striving to make the sixty-sixth annual session of the Illinois State Medical Society the "biggest and best" in its history, and—they are going to do it!

Although the forthcoming meeting will be held in Champaign City, yet Urbana, her twin sister, will, with "heart and soul," strive to make the session a success, just as forty years ago, Champaign was "heart and soul" with Urbana.

CHAS. B. JOHNSON, M. D.

Champaign, Ill., March, 1916.

Public Health

EPIDEMIC OF TYPHOID FEVER AT MOLINE.

A VALUABLE LESSON TO HEALTH AUTHORITIES.

The State Board of Health reports that at the present time there is an epidemic of typhoid fever in Moline, which is peculiarly instructive to public health authorities. The epidemic, which involves about fifty cases, is now fortunately under control and is being thoroughly studied by the city health officer and the city chemist, with a view to determining all of the factors involved, so that they may be in a position to protect the city from similar visitations in the future.

While the investigations are not yet completed, several significant facts have been established:

1. A vender of bottled water, owing to the failure of his deep well supply on account of pump troubles, is reported as having filled his bottles with water from a badly polluted shallow well. Three cases are said to be definitely traced to this polluted water and a number of other cases in all probability are due to the same cause. Not only did typhoid fever result, but in one factory where the vended water in question is the only water used for drinking purposes there resulted a large number of cases of gastro-intestinal disturbances. A bit of evidence confirmatory of the theory that the vended water is at fault is the case of a typhoid fever victim who drank boiled city water exclusively at home and the vended water exclusively at the factory.

2. Seven cases were traced to the use of unpurified Mississippi River, water taken from points below sewer outlets at a factory. This factory has a dual system of water supply—one for drinking purposes, obtained from an artesian well yielding a water of unquestioned purity, and the other taken from the river for industrial purposes. As some of the pipes carrying the artesian water are placed close to steam pipes, this water at times becomes warm and unpalatable and the factory operatives resort to the cooler and more palatable but dangerously polluted river water. This is not a new cause of typhoid fever, inasmuch as it has been definitely fixed as the cause for an epidemic of typhoid fever at Lawrence, Mass., and as a partial cause of former prevalence of typhoid fever in Youngstown, Ohio.

3. One of the factories in Moline has a fire fighting system, deriving its water supply both from the polluted Mississippi River below sewer outlets and also from the public water supply mains. The only barriers against the entrance of polluted river water into the city mains is a single swinging check valve. Among engineers it is well known that such check valves frequently get out of order and in point of fact an epidemic involving over ninety cases of typhoid fever was traced to a defective swinging check value on a fire fighting system at Lowell, Mass., and the weight of evidence indicates that at least a large portion of the typhoid fever during the disastrous epidemic in Rockford, Ill., in February, 1912, was due to a similar defective swinging check valve.

4. The public water supply of Moline is filtered and the process of filtration is customarily supplemented by sterilization with hypochlorite of calcium. As a result of the war in Europe the price of hypochlorite has been advanced from 1¼ cents per pound to over 13 cents per pound and at the present time is not procurable at all. As a result of this situation the hypochlorite supply at the filter plant was exhausted during the latter part of January and for about two weeks dependence was placed on the filters solely. As the filters are somewhat overburdened and as the plant is not adapted to treatment of the highly turbid and polluted Mississippi River water, without the assistance of sterilization, the filter plant did not operate up to a proper efficiency. The bacterial counts in the filtered water sometimes were as high as 500 or 600 per cubic centimeter, whereas, a maximum of 100 is generally regarded as a proper standard. On the other hand, the filtered water showed the presence of the colon bacillus (indicative of sewage contamination) on but one day and those in charge of the filter plant, therefore, felt no great alarm, though they were apprehensive. The investigations thus far made have not revealed definitely

that the public water supply was responsible for any cases of typhoid and the further investigations now under way should prove of interest in this connection. The public water supply, however, is now safe, due to the fact that there has been installed suitable equipment for the application of liquid chlorine, an even more effective sterilizing agent than is hypochlorite of calcium.

Perhaps the most striking lesson of this epidemic thus far revealed is the advantage of having a competent city health officer and a competent city chemist equipped to make prompt investigations upon the outbreak of an epidemic of typhoid fever. As a result of their efforts the epidemic was unquestionably checked and the causes are being ferreted out so that the city need not be subjected to the same dangers in the future.

VENDED WATERS TO BE INVESTIGATED BY THE STATE BOARD OF HEALTH.

The epidemic of typhoid fever in Moline, which is discussed in another item in this issue, calls forcible attention to the danger lurking in the use of bottled waters not subjected to inspection. The general public is in the habit of placing blind faith in the sanitary quality of waters sold in bottles. A little thought, however, will reveal that the operation of bottling, even supposing the source to be pure, subjects the water to most of the dangers inherent in the preparation and sale of milk. At the present day there is hardly a man, woman or child who does not recognize that milk, in order to be safe, must come from clean dairies where extraordinary precautions are taken to prevent contamination and most health departments provide elaborate machinery for the inspection and control of the milk business. Vended waters, however, go along unmolested and a catchy name and an attractive legend on the bottles seem to give the public sufficient assurance that they are getting a pure and unpolluted product.

The danger from vended waters is not new to sanitarians, for mere observance of the handling of bottles will convince any one familiar with the manner in which water becomes contaminated that many of these vended waters must be polluted. Moreover, an investigation by the Massachusetts State Board of Health some fifteen years ago indicated that over 50 per cent of the vended waters as delivered to the purchaser in that state were contaminated, though a very much smaller percentage was found to be polluted at the source.

A marked increase in public interest concerning sanitary matters has no doubt stimulated greater care on the part of venders of bottled waters in maintaining their sources of supply free from contamination and their bottling works in cleanly condition. Nevertheless, fragmentary evidence that comes to the attention of the State Board of Health from time to time indicates quite clearly that there is still much room for improvement.

As soon as practicable, the present status of vended water in Illinois will be canvassed by the new engineering bureau of the State Board of Health, not with a view of antagonizing the business, but with a view to securing the co-operation of persons and companies engaged in selling bottled water, to the end that the well-conducted establishments may be certified by the State Board of Health as offering for sale a product that meets proper sanitary demands.

AN ENGINEERING CONFERENCE OF GREAT SANITARY IMPORTANCE.

Under the auspices of Professor F. H. Newell, head of the civil engineering department of the University of Illinois and formerly director of the United States Reclamation Service, there was held at the university on March 8-10 a conference on drainage. Authorities on the subject of drainage presented at this conference a number of papers dealing with surveys, preparation of plans and specifications, drainage legislation, soil fertility, drainable land, laying of drain tile, excavating machinery for drainage ditches and a number of other topics, but throughout the conference one of the dominant notes of the discussion was the effect of drainage on public health.

There was one paper devoted entirely to the relation of drainage to the public health, which began with the statement that "there is no field of engineering endeavor that is of such great importance to the human inhabitants of the earth as drainage engineering." The paper then called attention to a statement made a year or so ago by General W. C. Gorgas, to the effect that, with proper drainage, backed by efficient sanitary administration, there are no tropical countries that cannot be made comfortably habitable for people of the temperate zones and that this possibility is of inestimable consequence to mankind, inasmuch as it means that the most fertile and productive areas on the globe can be developed to the fullest extent, whereas now they are left practically untouched.

As a concrete example of how drainage projects may be carried out for profit and for health in the latitude of southern Illinois there was described a large drainage project to the southward of Louisville, Ky., which eliminated malarial fever from the entire district, made possible the installation of sewerage systems and increased property values within the drained area by approximately $3,000,000, or 7.7 times the actual outlay for doing the work.

Discussions brought out the fact that there is still a great deal of malaria in Illinois, which claims, in the aggregate, many lives annually. While the percentage of fatalities from malarial fever is not great, as compared with other diseases, whole populations are affected so that their efficiency as useful citizens is reduced as much as 40 to 90 per cent. The elimination of malaria, therefore, has a tremendous economic value, which should be added to the increased value of the reclaimed land when computing the profitableness of drainage undertakings.

At the closing meeting of the conference resolutions were adopted for promoting the reclamation of land by drainage and flood protection. Prominent among these resolutions were two which dwelt on the immense importance of drainage to the public health and called upon the State Board of Health of Illinois to use its authority to the utmost toward guiding drainage development along lines that will best promote the interests of public health.

A HEALTH SURVEY OF WHITE COUNTY.

The Illinois State Board of Health publishes in the February number of the *Health News* the advance pages of a health survey of White County, made during the past year, through the cooperation of the State Board of Health with the Illinois State Association for the Prevention of Tuberculosis. The field work for the circular was carried out by Dr. I. A. Foster, medical inspector for the State Board of Health, and Miss Harriet Fulmer, R. N., at that time extension secretary of the State Tuberculosis Association.

White County is one of the smaller counties in the state located in the far southern part of Illinois and bounded on the east by the Wabash River, which separates it from the state of Indiana. The facts brought out in the White County survey are of vital interest to the large group of physicians and laymen of that county, through whose interest the survey was originally made, but the publication of these facts will also be of the utmost importance to many of the counties of the entire southern section of Illinois, since the conditions which prevail in White County are characteristic of the counties situated in that part of the state.

Sanitarians and social workers who have looked over the advance proofs and manuscripts of the White County Survey are impressed that this is one of the most useful contributions to the sanitary development of rural communities made up to this time any place in the country.

White County was accorded a population of a little over 23,000 in the 1910 census and covers an area about 25 miles long and 20 miles wide. In the ten townships of the county there were located last year 128 persons with more or less advanced tuberculosis and it was found that there had been 64 deaths from that disease during the years 1914 and 1915.

The field work of the survey was approached through the public schools and, by interesting the children of the county, it was made possible to secure accurate information relative to home and general living conditions.

Among the most interesting facts elicited was the extent to which the older families of the county had intermarried and, since the population of the county had received relatively few new recruits within the past generation or two, it was found that some of the children were related to the large majority of the persons living in their neighborhoods or townships. The fact of this consanguineous marriage upon the physical make-up of certain of the residents of White County is a question for interesting speculation.

The White County Survey was undertaken at the request of residents of the county. While the investigators frankly pointed out the shortcomings of certain communities in the county, the tone of the survey report is distinctly helpful and the reader is reminded that similar shortcomings are to be found not only in numerous counties in Southern Illinois, but are more or less common to the rural communities throughout the entire state.

With its general constructive purposes the survey report recommends definite changes and improvements, the most important of which are:

1. The construction of modern school buildings and the establishment of central schools in the various townships to take the place of the numerous one or two room schools now scattered throughout the county.
2. Medical supervision of the health of school children.
3. The employment of a county nurse or nurses working especially in the public schools.
4. The employment of a salaried health officer.
5. The improvement of the privies and vaults used throughout the county and a higher degree of protection of private and public water supplies.

As a result of the interest created at the time the survey was made there has been organized the White County Public Health Council, made up of the most prominent physicians and laymen in White County. This organization is now in active existence and through its energies it is anticipated that a county visiting nurse will soon be employed. Through the survey there were also organized in most of the schools of the county branches of the Illinois Open Air Crusaders—groups of school children all of whom have signed a pledge to observe the most important rules of health.

There was a time when the various communities would be disposed to more or less resent the frankness with which the survey report deals with the weaknesses and shortcomings of health administration, but within the past few years it has been recognized that the city or county which has made an intelligent study of its existing conditions stands head and shoulders above the other communities surrounding it. No community will make material progress until it is armed with the truth about itself. White County is exceedingly fortunate in having this intelligent survey made of its conditions and the county is likewise fortunate in having within it intelligent and progressive physicians and laymen, who have not only invited such a study, but who have manifested a disposition to act effectively upon the facts brought forth.

TUBERCULOSIS NOTES.

Defective teeth in all cases of pulmonary tuberculosis should be remedied as a part of its regular treatment. The constant absorption from diseased

teeth tends to lower the vitality and resistance of the patient.

Neuman (*Zeitschrift fur Tuberkulose*, Dec., 1915) recommends the use of calcium salts and the intravenous injections of 10 per cent. sodium chlorid as the most satisfactory method of treatment.

Federal control of tuberculosis is urged by the National Association for the study of the cure and prevention of tuberculosis.

There are three types of tuberculin reactions which should be kept in mind—local, focal and general.

Tuberculin should never be used as a method of treatment where the patient is not under absolute control. Failure to observe the patient continuously while under tuberculin treatment accounts for most of the failures by this method.

Never make a diagnosis of tuberculosis unless absolutely sure, but endeavor to make the diagnosis early enough to make treatment of value.

DO YOU KNOW THAT

Four per cent of the inhabitants of certain sections of the South have malaria?

The United States Public Health Service has trapped 615,744 rodents in New Orleans in the past 18 months?

The careless sneezer is the great grip spreader?

Open air is the best spring tonic?

Typhoid fever is a disease peculiar to man?

Measles kills over 11,000 American children annually?

There has not been a single case of yellow fever in the United States since 1905?

There is no federal institution in the continental United States for the reception and care of lepers?

Plague is a disease of rodents?

Malaria is spread by a special mosquito?

House screening is a good disease preventive?

Fingers, flies and food spread typhoid fever?

The United States Public Health Service believes that the common towel spreads trachoma, a disease of the eyes?

Children from sanitary homes advance more rapidly in school than those from dirty premises?

Hundreds would never have known want if they had not known waste.

Folks who never do any more than they get paid for never get paid for any more than they do.

Never marry but for love, but see that thou lovest what is lovely.

When you get into water, keep your mouth shut.

Instead of letting the fly "get" our young, let us teach our young to "get" the fly.

IODINE IN ACUTE AND CHRONIC GONORRHEA.

Dr. Gerald Beyler calls attention in Gazette des Hopitaux of March 19, 1914, to the rapidity with which, in his own experience at least, colloidal iodine checks gonorrhea and, seemingly, completely eradicates the disease.

"Iodine," he says, "is an admirable antiseptic, efficacious not only against the gonococcus, but also (a very important point) against the pathogenic organisms which cause secondary infection (streptococci, staphylococci, etc.), and which often keep up an interminable suppuration after the gonococcus has disappeared. Its great power of diffusion renders it very valuable in reaching the micro-organism in the glandular pockets of the urethra, in which it so often settles."

But ordinary iodine has its drawbacks: it is caustic, irritating and toxic, and cannot therefore be used for urethral injection. Turning to *colloidal* iodine, he finds in this the ideal agent for the treatment of gonorrhea, since it can be injected into the urethra and the bladder, and be applied topically, without the slightest risk.

"After from eight to ten days' treatment all the gonococci and other germs disappear and the persistent discharge, even though of microbic origin, rapidly dries up."

REMOVAL OF TWO NAILS

(*Continued from page 293*)

Second: That the picture should be taken by the best x-ray apparatus obtainable, with sufficient current to make picture in not longer than 1/10 to 1/5 of a second. Short exposures are absolutely necessary for finding foreign bodies in the lungs, on account of the extensive movement of this organ during respiration. The patient should fill lungs and hold breath when the exposure is made.

Third: That an x-ray be made in all doubtful cases of foreign bodies in the lungs or esophagus.

Fourth: That the foreign body be removed as soon as possible.

Fifth: That more laryngologists should learn to do endoscopy as more of these cases can be saved.

Sixth: No one should do bronchoscopy without having taken a thorough course and then practice considerably on dogs.

Seventh: There is absolutely no advantage in doing a tracheatomy in these small children, but on the contrary many disadvantages, the mortality being much greater.

7 W. Madison Street.

Auto Sparks and Kicks

FUEL AND THE FUTURE.

Whatever may be the truth as to the necessity for the present price of gasoline, the fact is abundantly clear that the law of supply and demand necessitates a price considerably above that of a few years ago. In other words, the supply of gasoline as originally obtained by very easy methods is lessening.

Kerosene today is a drug on the market—it is almost a waste by-product—and commercial common sense will compel its conversion to some useful end.

Meanwhile, however, it is not wise to put off consideration of the direct use of unconverted kerosene in automobile engines. There is no impossibility in a kerosene carbureter.

Hitherto the thing which has acted most against the kerosene carburetor is this very detail: that it cannot be handled *precisely* like a gasoline carburetor. Added to this is the second fact that it is difficult to obtain very slow speeds with the heavier fuel. These things are not serious. Today the advantage of a much cheaper fuel is sufficient to make it worth while to have a little more elaboration in the carburetor system. The truck, at all events, can be converted easily, for it does not need the same refinement of performance as a high grade touring car.—*Automobile.*

80 PER CENT. OF FUEL NOT VAPORIZED.

The trouble with motor cars today in the hands of the public, using low volatile gasolines, is that but 10 per cent. of the gasoline used is vaporized, 10 per cent. partially atomized and 80 per cent. of the liquid actually goes into cylinders as raw liquid. There is not time in high speed engines for all this liquid oil to be transformed from liquid to vapor, or gas, before the dead center of the piston, and any flame which develops after the piston starts to fall, adds little if any power to the crankshaft, although it does burn up the oil. To that extent it is wasting valuable fuel oil, due to the low volatility of oils of today being used in engines designed for highly volatile oils. —W. P. D., New York.

TRY KEROSENE MIXTURE.

Would you kindly advise me as to whether the Schebler model L carburetor on my Overland model 59 would handle kerosene as a fuel or not? Would any change be necessary? I have been thinking that I would reduce the tension on the auxiliary air intake valve spring. Would this be advisable or not? I am going to fit a small tank on the dash of the car to supply gasoline for starting.—R. W. C., Vineland, N. J.

You will very likely find the carburetor will operate well on a half and half mixture of kerosene and gasoline. Some engines run well on this mixture though not all. It will probably need more air. You would be well advised to fit the small tank for starting purposes.

SPARKLETS.

A motor will start more readily in cold weather if without turning on the spark it is cranked two or three times with the throttle wide open; then close the throttle until it opens about an eighth from its shut position, throw in the switch and with but few exceptions the motor will start on the spark.

—

With some engines it is difficult to start without opening the throttle to a position which will cause the engine to race as soon as it gets started. It is very annoying and embarrassing to crank an engine, and have it speed up with a roar, before one is able to get back to throttle it. Careful adjustment of the carbubetor will in nearly all cases make it possible to start on a fairly well closed throttle. If not, the engine can be started without this racing by cranking it a few turns with the throttle wide open and the spark off, then partly closing the throttle and cranking with the spark on.

—

When a tire is completed it is free from moisture on the inside and it remains so as long as the tread is in condition to perform its full duties. Small cuts, however, caused by sharp objects in the roadway, are very apt to appear, even in a new tire, and through these openings water eventually finds its way to the tire carcass. In time this produces separation of the individual plies of fabric of which the carcass is made up, and the tire rapidly goes to pieces. Breaks in the treads also admit sand and dirt, which cause fabric separation.—*Auto Trade Journal.*

Society Proceedings

Illinois State Medical Society

ANNUAL MEETING AT CHAMPAIGN MAY 16-18, 1916.

PRELIMINARY PROGRAM.

This list of papers is incomplete. A revised list with names of speakers will be published in the May JOURNAL.

Angina Pectoris—with report of cases.

Medical Legislation—Recent and Contemplated.

Efficiency in Medical Practice.

The Influence of Mixed and Secondary Infections in Pulmonary Tuberculosis in Man.

Malignant Endocarditis.

Therapeutic Starvation in Infancy.

A Clinical Study of Pneumonia—With special reference to Prognosis.

The Clinical Significance of Vicarious Gastrorrhagia—A Consideration of Five Cases.

Radium Therapy—Remarks on the use of radium in deep seated Malignant disease and in Dermatology. (Illustration with lantern slides.)

ORATION IN MEDICINE.

The Medical Mechanism for War in the United States.

Surgery of the Colon.

Mechanical Kinks of the Back.

Facia Transplantation.

Surgery from the Patient's Viewpoint.

Appendicitis from the Standpoint of the Ordinary Surgeon.

Military Preparedness from a Surgical Standpoint. Experience as Post Surgeon at Camp Tanner During the Spanish-American War.

Symposium:

(A) Splenectomy in Pernicious Anemia.

(B) Splenectomy in Pecular Types of Splenomegaly.

Traumatic Hernia.

Management of Empyema in Children.

X-Ray Interpretation.

Value of X-Ray in Differential Diagnosis in Gall Bladder Lesions.

Survey of Opinions and Experiences in First Aid.

Convalescent Hospitals: Their Economic Value.

The Health Department Under the Commission Form of Government.

The Importance of Germ Carriers in the Propagation of Diphtheria.

The Classification of Medical Colleges and Its Effect on Medical Education and the Medical Profession in America.

An Epidemic of Typhoid Fever, Due to the Use of Polluted Water Supply at Old Salem Chautauqua.

Raw Oysters as Carriers of Typhoid Fever Infection.

Sanitary Legislation, Recent and Contemplated.

The Preparation and Use of Vaccines in Chronic Bacterial Infections.

Chronic Appendicitis from the Standpoint of the Internist.

Importance of Infections Originating in the Post-nasal Space in Infants and Children.

EYE, EAR, NOSE AND THROAT SECTION

1. Two Years' Clinical Experience on the Trachoma Question in Southern Illinois.—Edward E. Edmondson, Mt. Vernon, Ill.
2. Experimental Reproduction of Accessory Sinus Suppuration for Teaching Purposes.—M. F. Arbuckle, East St. Louis, Ill.
3. The Capsule of the Faucial Tonsil, Its Structure and Significance.—Elmer L. Kenyon, Chicago.
4. Corneal Ulcers and Their Treatment.—Wesley Hamilton Peck, Chicago.
5. Consideration of the Recognized Operative Measures on the Nasal Accessory Sinuses.—Author to be announced.
6. Circular Plastic Operation for Cicatrical Ectropion, a New Operation.—E. F. Snydacker, Chicago.
7. The Diagnosis of Disorders Affecting the Perceptive Organs of Hearing.—Otto J. Stein, Chicago.
8. Symposium on Penetrating Injuries of the Eye-ball:
   (a) Diagnosis.—Casey A. Wood, Chicago.
   (b) X-ray, Value of in Localization of Foreign Bodies in Eye-ball: with Demonstration and Stereopticon Slides.—Dr. Wells, Chicago.
   (c) Treatment.—Harry Woodruff, Joliet.
   (d) Pathology of Infections Complicating; Exhibition of Specimens and Stereopticon Slides.—Francis Lane, Chicago.

9. Some Tonsil Observations.—Frank Buckmaster, Effingham.
10. Metallic Drainage for Glaucoma.—Arthur Prince, Springfield.
11. Prognosis and Treatment of the Common Intro-Cranial Lesions Complicating Nose, Throat and Ear Infections.—Norvall Pierce, Chicago.
12. Value of the X-ray in the Diagnosis of the Affections of Nasal Accessory Sinuses and Mastoid with Demonstrations and Stereopticon Slides.—Geo. Shambaugh, Chicago.
13. Diagnostic and Prognostic Value of Visual Fields; with some Suggestions in Technique.—George F. Suker, Chicago.
14. Comparative Value of Direct and Indirect Laryngoscopy and Bronchoscopy.—Stanton Friedberg, Chicago.
15. The Treatment of Strabismus in Children. J. Whitefield Smith, Bloomington, Ill.
16. Common Focal Centres of Metastatic Infections in the Upper Respiratory Tract.—W. J. Ridout, Freeport.
17. Post Nasal Cauterization in the Treatment of Chronic Constriction of the Eustachian Tubes, with Reports of Cases.—Alexander S. Rochester, Chicago.
18. Review of the Principal Operative Measures Advocated for the Removal of the Faucial Tonsil.—A. B. Middleton, Pontiac.
19. The Value of Diagnosis in the Treatment of Nasal Conditions.—C. H. Long, Chicago.
20. The Detection of Malingerers of Deafness, with Demonstrations of Instrument.—Carl B. Wagner, Chicago.

COOK COUNTY

Chicago Medical Society

Regular Meeting, March 1, 1916.

1. Report of a Series of Cases of Trichinosis, with Remarks on Diagnosis, Leon Bloch. Discussion: Maxmilian Herzog and Arthur F. Beifeld.
2. Recognition and Treatment of Ruptured Ectopic Gestation, E. E. Montgomery, Philadelphia, Pa. Discussion: J. Clarence Webster, Carey Culbertson, J. B. DeLee, Hugh N. MacKechnie, Channing W. Barrett and Henry F. Lewis.

Regular Meeting, March 8, 1916.

1. Toxemia in Its Relation to Dementia Praecox. Discussion: Geo. W. Hall, Chas. E. Fischer, Edward H. Ocksuld and F. P. Machler.
2. Physical Findings in Spinal Fluid in Various Diseases, Abraham Levinson. Discussion: Julius H. Hess.

Joint Meeting of the Chicago Medical and Chicago Neurological Societies, March 15, 1916.

1. The Newer Conceptions of the Neuroses: An Estimate of Their Clincal Value, Sidney I. Schwab, St. Louis, Mo. Discussion: Hugh T. Patrick and H. Douglas Singer.
2. Some Modern Views of Syphilis of the Nervous System, Archibald Church.
3. Selected Chapters on the Treatment of Nervous Diseases, Julius Grinker.

Joint Meeting of the Chicago Medical and Chicago Roentgen Societies, March 22, 1916.

1. Pulmonary Abscess and Its Roentgen Demonstration by Invitation, P. M. Hickey, Detroit, Mich. Discussion: Frederick Tice and Charles Louis Mix.
2. Spasms of the Stomach and Duodenum from a Roentgenologic Viewpoint. By invitation, R. D. Carman, Rochester, Minn. Discussion: Arthur J. Carlson and Joseph C. Friedman.
3. (a) Some X-Ray Observations in the Diagnosis of Certain Chest Lesions; (b) A Diagnostic X-Ray Sign of Erb's Paralysis. By invitation. Sidney Lange, Cincinnati, Ohio. Discussion: Hugh T. Patrick and M. Milton Portis.

Regular Meeting, March 29, 1916.

1. Thoracic Surgery, Howard Lilienthal, New York, N. Y. Discussion: A. J. Ochsner, John Ritter, Carl Beck and T. A. Davis.
2. Antidotes in Mercuric Chlorid Poisoning: An Experimental Study (Lantern Slides), Bernard Fantus. Discussion: Hugh McGuigan and Thomas A. Carter.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting, held November 16, 1915, with the president, Dr. George W. Boot, in the chair.

CASE OF HYPOPHYSEAL DISEASE.

Dr. Otto J. Stein exhibited a patient upon whom he had operated for disease of the hypophysis by the trans-nasal-sphenoidal route. At the time of the operation her vision was practically *nil;* she was obliged to have someone lead her about. This, with the severe headaches and vertigo, constituted the chief subjective symptoms. The symptoms, from a pituitary gland standpoint, were the typical Froehlich's syndrome: Thirty-three years of age; married; no children; menstruation ceased at 23 years; adiposity—weight, 245 pounds; skin dry; hair scanty; polyuria; functionless genital organs; infantilism; no sugar; negative Wassermann; blood pressure, 125 systolate; no motor paralysis; no Rhomberg; reflexes reduced. The Hirsch technic was followed in operating. No particular difficulty was encountered in reaching the gland; the floor of the sella was removed, allowing the adenoma to present into the sphenoid sinus. No gland tissue was removed. All the symptoms quickly disappeared after this, and have remained absent during the year following the operation, and at this

time the patient has recovered practically all of her sight.

CASE OF RHINOPHYMA.

Dr. Stein exhibited a case of rhinophyma. This condition usually occurs in those who are exposed a great deal to the open air in all kinds of weather, that is, in engineers, firemen, conductors and motormen, drivers and teamsters. There is frequently an element of force back of it. This man noticed it after blowing his nose violently, when something seemed to give way. He felt a dilation of the vessels. He had a slight rhinitis at the time, just as many of these cases have. After this the noticed the enlargement. Then the lobulated masses began to form. The nose feels soft.

In the differential diagnosis one thinks of rhinoscleroma, but when touching the nose and examining its interior you notice the difference. This condition is nothing but a hyperplasia of the skin.

The dermatologists attribute all of these cases to an acne, but this is denied by the rhinologist. In the case shown, there was no history of acne, and no evidence of it about the man now. The condition starts with a hyperemia, which disappears easily on pressure in the first stage. In the second stage there are enlarged vessels and veins, and, finally, these small masses of tissue, which they say is nothing but hyperplasia from the sebaceous glands, later forming lobulated masses, until they deform the nose and pull it down. The third stage is much rarer than the other two (which are quite common) and has never been recognized in women.

DISCUSSION.

Dr. Joseph C. Beck, referring to the case of rhinophyma, recalled a case which he and Dr. Friedberg had seen, which was even more extensive than the one presented. This tumor hung down over the mouth. The patient was a man, about sixty-five years of age. The operation, which was followed by an excellent result, consisted of a decortication of the whole area of the nose involved; then some skin from each side of the nose and face was brought together, to cover the defect. It made a pinched nostril, but the result has been satisfactory and there has been no recurrence. The growth was removed right down to the cartilage. Kaposi has reported this as necessary in these cases, so that no vascular and verrucous structure will remain.

Dr. Beck thought the result in Dr. Stein's hypophyseal case was excellent.

Dr. Stein, in closing the discussion, said he intended to perform the decortication operation in the case of rhinophyma. Dr. Beck said that in his case he took off the skin down to the cartilage. Dr. Stein would think that a faulty thing to do, because you have to depend upon skin formation. You should leave a little layer of skin for proper epidermization. If you take it all off, you get scar tissue contraction, unless you do a skin-grafting or draw the skin from the neighboring parts over the raw surface. If you are going to allow it to heal without any grafting, it is a mistake to cut so deep. You have got to carve it out as a sculptor would carve, with a razor, and dissect all around the cartilage, but always leave a little skin underneath for healing. With this method he is led to believe that the results are very good.

Dr. Beck said he was afraid he had been misunderstood. Unless you remove the growth down to the perichondrium, there is a recurrence, and the nose must be immediately covered. He did not leave the nose exposed, nor did he do any skin grafting, but he made a dissection from the side of the face in the forms of flaps and brought them together over the tip of the nose, so that the nose was covered with healthy skin. To carve out this tissue and leave some of the skin would prove futile, according to authorities.

CARCIMONA OF THE ANTRUM.

Dr. George W. Root presented a patient with carcinoma of the antrum. He lost his eye four years ago from an accident, and before he had any symptoms of cancer. He came to Cook County Hospital three months ago, complaining of right-sided nasal obstruction, and wanted something done to relieve his breathing. There was a large polypoid mass present, which the speaker removed through the nose. The carcinomatous process evidently began in the antrum. A Denker operation was then planned to relieve the nasal obstruction, a radical operation being out of the question, since the growth extended across the metlian line in the roof of the mouth. When the external wall of the antrum was exposed it was found destroyed to such an extent that a curette could be easily introduced. The interior of the antrum was thoroughly curetted out, the internal and external walls and much of the floor of the antrum being removed. The patient then left the hospital, but returned a day or two ago in the condition presented. The cheek is much thickened with the growth. The hard palate is much infiltrated and the infiltration extends almost across the roof of the mouth. In the speaker's opinion, the growth is absolutely inoperable. He is receiving Coley's serum and is being treatd by the x-ray, but with little hope of accomplishing any permanent good.

SUSPENSION LARYNGOSCOPY, WITH REPORT AND PRESENTATION OF CASES.

Dr. Joseph C. Beck said that suspension laryngoscopy means the direct inspection of the larynx without the employment of any mirrors, the patient lying prone on the table, with his head free. This inspection is elicited by a specially constructed tongue depressor; at the distant end of its handle is a hook, which fits into a notch on the cross-bar of the additional apparatus, called the gallows. The cross-bar can be raised or lowered as well as brought nearer or farther by the examiner, thus exposing any or all parts of the larynx. Dr. Beck reviewed the progress of this method of examination from the first description of Killian to the present day, mentioning the work of Lynch, of New Orleans. He had his associate, Dr. H. L. Pollock, demonstrate the method on a patient, and showed other accessory instruments employed in the procedure. He called attention to more than twenty different pathological conditions in which he employed it, on more than two hundred and fifty cases—in some cases as often as twenty times. He has been using this method for the past three years, with excellent results, and no untoward effects. It may be used under either local or general anesthesia. Some of the conditions of the larynx and mouth in which he has employed it are: Adenoma, fibroma, myxofibroma, angioma, papilloma, carcinoma, syphilis,

tuberculosis, rhinoscleroma, septic perichondritis and abscess, cicatricial stenosis from burns and other trauma, intubation, foreign bodies, chronic hyperplastic laryngitis, atrophic laryngitis, bronchiectasis and bronchorrhea, tongue conditions, as cysts, abscesses and tumors, hypopharyngeal condition in region of pyriform fossa, enlarged thymus diagnosis, substernal thyroid, paralysis of laryngeal muscles, esophagus conditions. He also called attention to some of the difficulties encountered, one of which was slipping of the tongue to one or the other side of the depressor or spatula; another, the nervousness and irritability of some patients, no matter how thoroughly cocainized; still another, the disagreeableness of the method to some patients.

The value of the new method lies in being able to see things as they are; the precision in removal of the growth—no matter how small; and the fact that the gagging is practically done away with. Trouble will also be encountered if one attempts to suspend a patient who has no upper teeth, or perhaps one central incisor, or if the teeth are loose, as, for instance, in pyorrhea alveolaris. Another trouble he had in cases of ankylosis of the cervical vertebra or lower jaw being unable to bend the head back and open the mouth sufficiently.

Dr. Beck then reported four interesting cases: 1. Papilloma, ending fatally; 2, adenocarcinoma, apparently cured; 3, angioma, followed by aphonia and subsequent recovery; 4, sarcoma, followed by bleeding stopped by intubation. He also presented eight cases in which he employed this method in diognasis and treatment, as follows: Internal or accessory thyroid gland at base of tongue. Impossible of suspension, but successfully operated on by external pharyngotomy. Fibroma the size of a pea, showing very accurate removal and perfect voice in a man whose voice is of great potential value. Three cases of laryngotracheal stenosis, requiring laryngotomy as a cure: One syphilitic, one giant hypertrophy of mucous membrane, secondary to suppurative sinus disease, and one scleroma associated with the rare disease of scleroderma of the hands and feet. These were shown in the three stages of the operation.

Dr. Beck also presented a man with laryngeal stenosis that requires a permanent tracheotomy. Such patients, if they wish to utter sounds, must place their finger over the mouth of the tube, which is embarrassing and keeps men from obtaining satisfactory employment in many instances. The speaker devised an attachment to any tracheotomy tube which will enable the individual to open and close the opening without being noticed, and thus speak. This consists of a flexible rod within a flexible cable sheath. At one end is a sliding shuttle, and at the other end a spring compression and release button. This latter end, with the spring compression and release button, is kept in the patient's pocket.

DISCUSSION.

Dr. S. A. Friedberg referred to certain points in the technic. When the instrument is introduced the tooth-holder and spatula are very close together. This prevents satisfactory illumination of the lower part of the pharynx and epiglottic region. If care is not used in manipulation one may get an edema of the epiglottis and ary-epiglottic folds, or if too long a spatula is used, there is the possibility of it going back of the arytenoids into the mouth of the esophagus. Any unnecessary or excessive manipulation in the supraglottic region is very apt to cause an edema. He has found this to be so, particularly in children with multiple papilloma of the larynx, in using the simple direct method in operation. This brings up the question that if we are to use this instrument in children, particularly in cases of multiple papillomata, whether or not it is advisable to do a preliminary tracheotomy. Dr. Beck had referred to the difficulty experienced in suspending some cases, and this reminded the speaker of a case which he and Dr. Beck had tried to suspend a few days previously. In this case there was a diffuse papilloma, involving one cord, with aphonia of a number of months' duration. There was complete anesthesia, but it was impossible to keep the spatula in place on account of the gagging reflex. After several attempts they were obliged to desist. It was interesting to note that immediately following the suspension operation efforts the respirations went up to about 36 a minute. The patient was very dyspneic; pulse about 160; she could not breathe very well lying down and had to sit up in bed. A sedative was given and the next day she was in very fair condition. On looking into the larynx the next day no evidences of traumatism were to be seen. There was considerable swelling of the vocal cords, with whitish exudate over the false cord, showing that the tip of the spatula must have come up over the vocal cords, producing this traumatism. The larynx was also deeply injected.

Dr. J. Holinger drew the attention of the society to several publications reporting great relief of the attacks of bronchial asthma after cocainization of the bifurcation of the trachea by means of tracheoscopy.

Dr. S. A. Friedberg wished to add one more point in regard to the use of anesthesia in these cases. In any operation about the respiratory tract the use of prolonged anesthesia is dangerous. That has been found out, especially by those doing bronchoscopic work. During the last few years he had seldom used cocaine, as that is a danger that should also be recognized. In using an excessive amount of cocaine we are apt to have a dangerous complication, as has been pointed out by Dr. Ingals. Dr. Beck had asked Dr. Friedberg why he did not use this method in foreign body work. He has not felt the necessity, because it may be managed so easily the other way. At least, that has been his experience, and he believes Jackson inclines to the same view. One objection to the method described by Dr. Beck is that, in cases of unruly children, an anesthetic must be given in order to accomplish anything. In passing the bronchoscope, without the use of suspension, this is not necessary.

Dr. George W. Boot wanted to call attention to two points in the report. First, amputation of the epiglottis for tuberculosis or other condition is very easy under suspension laryngoscopy. Second, in cases where edema of the larynx is feared following suspension laryngoscopy, it is advisable to do intubation as a precautionary measure. The speaker has seen papilloma of the larynx cured by wearing the intubation tube alone. It ought to be still more efficient after removal of the papilloma.

Dr. Beck, in closing, showed another case, in order to illustrate how well the patient could speak. Speech is the essential thing in these cases. This patient was very hoarse when he first consulted the speaker. He had a fibroma on the cord, a good-sized growth, not as large as a pea, but just about that form. It dropped subglotically and would not come up readily. It looked like a little polyp and was situated anteriorly. This growth was removed by the suspension method described.

Dr. Beck wished to make a strong plea, based upon his experience, for the use of this method for small growths, in accurate removal.

Dr. Boot spoke of intubation and that is what the speaker had wished to say in answer to Dr. Friedberg's remarks. He has done that after removal of papillomas in children,

so as to avoid the possibility of edema. He likes to use thacheotomy in papillomas in children for a longer period, because it prevents their recurrence, to some extent, and is considered good treatment.

Morphin is an excellent thing in these nervous patients and hyoscin, which the speaker used, as well as scopolamin.

If Dr. Beck were to try suspension again on the patient referred to by Dr. Friedberg he would give her morphin and atropin or hyoscin to get her quiet. He has found that this inability to suspend some cases is more of a mental condition. He did not see any exudates, but the fact that there was some trauma in this case should not deter anyone from the use of the method in other cases. The thing to watch out for is the trauma of the arytenoid by too long a spatula.

The speaker did not know of the articles referred to by Dr. Holinger, namely, the treatment and cure of asthma by one application of cocaine. That is worth while trying.

A SUGGESTION REGARDING THE RINNE TEST.

Dr. Robert Sonnenschein said that the Rinne test, as ordinarily applied, consists in placing a fork, preferably the A' (435 double vibrations), on the mastoid process and when it is no longer heard, holding it near the auditory meatus. Rinne himself placed the fork on the incisor teeth. When the air conduction is longer than bone (which is the normal finding), we have a positive reaction; when the bone conduction is the longer, the Rinne is negative.

Bezold showed many years ago that in the normal case, with positive Rinne, the air conduction exceeds that of bone by about twenty to thirty seconds. When, however, the fork is made to vibrate and held only before the ear, without being first in contact with the mastoid, the duration of hearing is considerably greater than otherwise. This is due to the fact that pressure of the stem of the fork against the bone lessens its duration of vibration, and we then do not get an accurate idea of the real length of hearing by air conduction. It has also been shown that in doing the usual Rinne test, after the fork is no longer heard on the mastoid, and then no longer appreciated by air, if the stem be inserted in the auditory canal, the sound is again heard.

According to Bezold, the actual duration of hearing by air conduction could only be determined if it were possible to approach the drum-head as closely with the prongs as with the stem of the fork.

It has for some time been my custom in testing patients by the Rinne method not only to use the usual routine of comparing the bone with the air conduction, but to again excite the fork and test the hearing by air alone.

Let it be said that this variation is only of use where the Rinne is positive, for in the negative reaction the length of air conduction has been noted before the fork is placed on the mastoid. In the second place, it is, of course, very important that the fork each time be made to vibrate with the same intensity. This is done by using a uniform method which consists in allowing a pleximeter to fall by its own weight from the perpendicular position, thus giving each time practically the same impact.

For the purpose of this paper, a series of fifty cases (25 pathological and 25 normal ones) was analyzed. Of the 100 ears thus examined, it was seen that the excess of hearing by air alone, as compared with that in the regular Rinne, averages 13 seconds. In the pathological ears this average was 10.7 seconds; in the normal ones, 15.2 seconds. The least difference was 5 seconds; the greatest, 30 seconds.

The percentage of increased air conduction was 28; in the pathological cases, 27; in the normal ones, 29. There is thus very little difference between the reactions in the normal and pathological cases that were tested.

Even though the value of this suggestion may be more academic than practical, it is suggested that in each case the Rinne test be done in the ordinary manner, and when the fork is no longer heard, that the stem be inserted into the meatus and the excess of hearing noted. Then let the fork again be struck and the air conduction alone determined. This accurate testing may lead to important findings with the examination of a large number of cases.

DISCUSSION.

Dr. Alfred Lewy said to avoid misunderstanding and confusion, the result of the Rinne test should be written as an equation, showing both the bone and the air conduction in seconds, not merely "positive" or "negative" and the normal time for the fork used should be stated.

Dr. George E. Shambaugh was pleased to listen to this discussion of the functional hearing tests, especially because this important part of otological work is the one most frequently gone over carelessly. An experienced otologist is often able to make a tentative diagnosis with a good deal of accuracy from the history the patient gives. But a positive diagnosis of the type and degree of deafness can only be determined by carefully carried out functional tests. Taken alone, the Rinne test is much more valuable than either a Weber or the Schwabach test, but even the Rinne test cannot be relied upon by itself to make a diagnosis in all cases. It is important here, just as in much of our work, to have a regular method of procedure and to run through a number of the more important functional tests in every case where the diagnosis is in doubt. A positive or a negative Rinne is often a relative affair, and it is only by studying this test in connection with the others that an accurate conclusion can be reached regarding the cause of the deafness. A shortened positive Rinne may have the same significance as a negative Rinne, and in advanced unilateral nerve deafness a negative Rinne on the affected side has the same significance as a positive Rinne does in most cases.

Dr. J. Holinger did not think that Dr. Sonnenschein's modification of Rinne's test ought to be encouraged. It does not give us anything materially new; is likely to make our statistics worthless and consumes time.

Dr. George W. Boot thought functional testing of the ear is apt to be slighted. Several years ago he was in a clinic in Philadelphia, where they had one tuning fork (laughter). In another clinic they had three or four forks and an old-fashioned Galton whistle. In one New York clinic they had a set of Bezold tuning forks, but did not use them. In this connection he wished to call attention to the little book by Sonntag and Wolff on "Functionspruefung des Ohres." It not only gives the methods of making the tuning fork tests, but the tests of the vestibular system as well, and all in very compact form.

Dr. Sonnenschein, in closing the discussion, said that the fact that many forms of Rinne test are found is not the point at issue. From the purely scientific side it is interesting to determine the real duration of air conduction. This may lead to a better understanding of some of the functional tests, as did experimenting with the monochord throw new light on the hearing of high tones. In any case, carrying out the test as suggested in the paper requires but very

little extra time and may in the end be productive of valuable results.

CHICAGO OPTHALMOLOGICAL SOCIETY.

Meeting of Dec. 20, 1915—Continued.

When the patient consulted Dr. Pratt the second day after leaving Dr. L., there was intense pain around the right eye; the iris was adherent to the lens in the position in which it was now found, which was about the size of a normal pupil. A little below the center of the pupil was a well defined deposit in the anterior third of the cornea, about 2x1 mm., with the axis perpendicular, and looking very much like a corneal abscess. It was cut down upon and found to be a yellowish-white tissue. There was hardly a haziness of the cornea around it. There was lachrymation and photophobia, and intense pain at night which was due to the iritis present. and which subsided after using atropin (2 per cent) at home every four hours, and atropin and dionin powder once a day at the office. Under this active treatment the iris still remains fixed. The patient states that for one week of the time he was with Dr. L. he did not go to bed on account of the intense pain.

November 22 the patient was taken to the National Pathological Laboratory in Chicago; the cornea was opened and the tissue scraped, but the findings were negative. Wassermann finding was negative.

The deposit has now assumed a pear-shape with a diameter of 2 mm. each way, so that it is gradually enlarging. The cornea is also becoming hazy around the deposit. The inflammatory symptoms are mild and the patient sleeps well at night.

Dr. Pratt brought the case before the Society for advice and diagnosis.

DISCUSSION.

Dr. Oliver Tydings recalled having a case many years ago of primary melano-sarcoma of the cornea in which the iris was invaginated. In the case reported by Dr. Pratt he understood there was no wound. The corneal tissue is not prone to malignancy, and personally he would continue the treatment the doctor had been giving, namely, atropin, dionin and heat to see if the case did not improve.

Dr. George F. Suker asked what the microscopic findings showed.

Dr. Pratt replied that they were absolutely negative. New tissue had taken the place of corneal tissue. It was increasing in size and the haziness of the cornea and around it is becoming greater, although the man sees better because the iris is drawing away in the upper part.

TUBERCULOSIS OF THE EYE; WITH SPECIAL REFERENCE TO TREATMENT

Dr. W. E. Gamble stated that the general surgeon's routine practice of a decade ago, of removing tuberculous tissue wherever found possible (joints and glands), has given place to a more conservative treatment, owing to the fear of general dissemination of the disease. Ophthalmologists have learned that operations involving the inside of the eye, as iridectomy, to remove tuberculous foci in the iris, are not only dangerous to the eye, but to the life of the patient. Von Hippel would only undertake extraction of secondary cataract when the tuberculous eye has been free from irritation for two years. In the presence of glaucomatous increase of tension, if the use of myotics does not suffice, he considers Elliott's trephining less dangerous than iridectomy as being an operation of less magnitude and not so likely to occasion scattering of the bacilli.

In the diagnosis of tuberculosis of the eye the ability of the opthalmologist to see the pathologic changes makes the diagnosis much easier than in other parts of the body. The clinical picture is often all that is necessary to make this complete, as tubercles in the choroid or nodules in the iris; yet there were occasionally obscure cases the nature of which we are unable to make out with the ophthalmoscope, aided by the history of the patient.

In the early days of the use of tuberculin most ophthalmologists saw untoward results from the diagnostic dose. The author saw a patient put to bed for several days from its use (4 mg. O. T.), and indeed several weeks passed before patient fully recovered. If these transitory symptoms were the only harm produced by this reaction, we would not be disturbed by the fear of its use; but there is accumulating evidence that these pronounced reactions are liable to cause general dissemination of the bacilli. This danger is greater in cases with tuberculous cavities and large tuberculous areas in the organism outside of the eye.

The focal reaction can best be studied in tuberculosis of the iris and consists in hyperemia of the blood vessel about the tubercular nodules, ciliary injection, especially in the region of the involved area.

Tuberculous foci of a chronic type occur in the sheaths of the nerve also and may be manifested in the eye in three forms, as a neuroretinitis not unlike albuminuric neuroretinitis, as an optic neuritis, and as a retrobulbar neuritis.

The acuity of vision of the affected eye in optic neuritis or neuroretinitis of suspected tuberculous origin, may aid in differentiating between involvement of the sheath of the nerve and of the septa in the nerve itself. In the former the reduction will not be great. In the writers' cases the vision was 20/20, in the other 20/40, while in the latter the reduction would be greater. The field of vision may be not only a means of determining whether the foci are in the sheath or in the nerve itself; but may also aid in locating the anatomical portion involved.

Tuberculosis of the eye may exist without focal reaction being produced by tuberculin, even in doses of 10 mgs. Von Hippel enucleated an eye full of tuberculous masses, yet a general reaction to old tuberculin was only obtained at the sixth injection of 5 mgs. Derby remarked that in a very considerable number of cases the desired

reaction does not occur. This is in accordance with the experience of the writer.

The knowledge that by well regulated diet, clean air and rest, a general resistance to the tuberculous process may be acquired, has given the profession the most potent weapon in the fight against this disease. General resistance comes slowly after weeks and months of treatment. In tuberculosis of the eye much harm, and often destruction of this organ, results before this is acquired. Fortunately, we possess in tuberculin a means of inhibiting the progress of the disease and curing it in many cases.

Among seventy-five cases of tuberculosis of the iris and ciliary body, relapses occurred in 15, and at intervals of from three months to three years after the end of the first course of treatment. In 115 cases of tuberculosis of the cornea there were 12 relapses. In 18 kerato-iritis, 3; in eighteen cases of conjunctivitis there were two relapses. There were no relapses in cases of the sclera or choroid. The total number of relapses was 32 out of 243 patients. A long interval must elapse before one is justified in considering tuberculosis of the eye definitely cured.

Tuberculin in large doses produces a definite action upon the tuberculous area. Cumulative evidence seems to point to the fact that this is, at most, only of secondary therapeutic importance; but that the important curative effect lies in establishing an active immunity against the disease.

DISCUSSION.

Dr. William H. Wilder said the essayist had wisely called attention to the danger that might result from the diagnostic use of tuberculin, for all had been instances where tuberculin had been used indiscreetly. It would seem, however, if certain precautions were observed, the danger might be comparatively insignificant. Too frequently the observer, thinking the case to be one of tuberculosis of the eye, resorts to the diagnostic use of tuberculin without first having made a careful physical examination of the patient. Such an examination should be complete enough to exclude other possible causes of inflammation of the eye, such as foci of infection in teeth, tonsils, prostate, etc.

It stands to reason that there will be great danger in the use of diagnostic doses of tuberculin if the patient has an actual cavity in the lungs, or shows an active tuberculous process in the joints or vertebræ or elsewhere. Such possibilities should be borne in mind. Furthermore, it is indiscreet to administer diagnostic doses of tuberculin without having a normal temperature record for several days preceding the use of the first dose.

He thinks that if such precautions are observed there will be fewer accidents to record and fewer cases in which the eye trouble is aggravated.

Again, there are certain conditions in the eye that may be recognized clinically as tuberculous in which it may not be necessary to administer the diagnostic dose of tuberculin, except possibly as confirmation of one's suspicions. Such are certain choroidal conditions, certain conditions of the cornea and sclera like sclerosing keratitis, kerato scleritis and inflammation of the iris in which tuberculous masses may be actually seen.

Unfortunately for our diagnosis these well defined clinical cases are not as numerous as the more obscure ones, in which we desire to get the help that comes from the diagnostic test with tuberculin.

As to the administration of the diagnostic dose of tuberculin after the patient has been prepared for it by a careful physical examination and a few days' test of the body temperature, he thinks in the very large majority of cases we are safe in administering one-half milligram of old tuberculin. Koch himself advised the use of one milligram as the initial dose.

If this produces no general nor local reaction and no rise in temperature, it should be followed in twenty-four or forty-eight hours with a dose of three milligrams. If this produces no general nor local reaction nor rise of temperature, a final dose of five milligrams may be given in twenty-four hours, and if no reaction follows, the assumption is that no active focus of tuberculosis is present. If, however, there is a distinct reaction at the point of puncture, the evidences of local or general reaction should be looked for very carefully and a rise of temperature of one degree or even less may be very suggestive, so that the next dose, if one is given, should be smaller than originally planned.

If a local reaction occurs in the eye with the suspected lesion, it will manifest itself by ciliary injection or an increase of it if ciliary injection was already present. Unfortunately, in many cases where this test is made, the eye is already so inflamed that it is difficult to detect the difference in the redness that might be caused by the local reaction and hence the value of the test is more or less problematical and we must reason from the general reaction that the eye lesion is probably tuberculous. The previous exclusion of an active tuberculous lesion by physical examination is, therefore, of great value.

One important point to remember in connection with the tuberculin test is the possibility of anaphylaxis. If one waits for a considerable time between the initial and the second dose, the patient may show an anaphylactic reaction. For this reason it is wise to proceed within forty-eight hours if necessary with the administration of the second dose, and then within twenty-four hours or thirty-six hours the third dose to avoid the danger of anaphylaxis.

Dr. George P. Suker said in reference to certain forms of parenchymatous or phlyctenular keratitis and nodular or phlyctenular conjunctivitis of low grade in which the physical findings are not marked, no diagnosis of tuberculosis should be made without a complete physical examination, this to include a skiagram of the chest. He has on many occasions had chest skiagrams made of children and young adults in whom there was but a faint suspicion of tuberculosis and found enlarged peribronchial glands. When such patients were subjected to the tuberculin test they usually gave a marked reaction and many times locally. And, under the tuberculin treatment, these cases made a good recovery. We should resort to the diagnostic tuberculin reaction test only at the very last—only when all other aids for a diagnosis of tuberculosis fail.

These low grade tuberculous inflammations of the conjunctiva and cornea do not always show the tubercle bacillus, but are the result of the toxic agent of tuberculosis engendered somewhere in the body. In the absence of the bacillus in the eye lesion the tuberculin test does not always give a local reaction.

In reference to the therapeutic dose of tuberculin in the treatment of these cases he believes in giving small doses and only increasing same when no temperature reaction follows the injection. The interval between injections must not be too short—usually one injection a week is sufficient in conjunction with the other measures employed.

Dr. E. K. Findlay saw the cases of tuberculous optic neuritis referred to by Dr. Gamble and was deeply impressed with the result of the tuberculin treatment. His attention was called to the pronounced reduction of sight that followed a large dose of tuberculin in the case of optic neuritis. Since that time the speaker has never found any focal reaction in a number of cases in which he has given tuberculin. He

was pleased that the essayist had given definite directions regarding the size of the diagnostic dose, as there was so much confusion on that point. The remarks regarding standardizing the various preparations on the market deserve consideration, as the inert preparations may account for many of the discouraging results that have followed this method of treatment.

Dr. L. W. Dean, of Iowa City, Iowa, said that whenever it is necessary to make tuberculin tests it is quite essential to have made first a thorough systemic examination. All of his patients needing tubrculin tests are taken as house cases, whether they are private or clinic patients, and kept in the hospital for three or four days.

Previous to the tuberculin tests a complete systemic examination is made by a competent internist. This obviates the danger of a serious reaction because of gross pulmonary or other tubercular lesion. His procedure with this class of cases is as follows: First, the sinuses, nose and throat are carefully examined, then the teeth are looked after by a dentist. The patient is then placed in the hands of the internist and examined by him before the tuberculin test is applied, the internist determining whether it is safe to make the tuberculin test or not. With the completion of the general examination the patient has a second careful examination of the eyes and if advisable the tuberculin tests are applied.

In many cases it is necessary to have a careful examination of the prostate, bladder and kidney.

In a number of cases the cause of the trouble has been located by the genito-urinary specialist. Unfortunately, even with clinic patients in Iowa it is difficult to get a very complete cystoscopic examination made because of objections on the part of the patient. Some of our patients have even refused treatment before they would undergo this examination.

Dr. Dean mentioned several instances where in the presence of positive Wassermann reactions with positive tuberculin reactions the patient has only done well with the use of the tuberculin therapy.

Dr. Oliver Tydings expressed himself as being fully in accord with Dr. Dean in insisting on making a more thorough examination of everything possible. It is necessary to make these investigations, particularly with regard to the condition of the sinuses, and teeth and the intestinal tract in cases of luetic infection.

With regard to some of the manifestations of tuberculosis of endogenous origin, such as phlyctenules and scleritis and conditions within the globe producing retinitis proliferans, etc., due to endotoxins, he is fully in harmony with Dr. Wilder along that line.

As to the use of tuberculin in the various conditions, since the introduction of tuberculin in this country he has used it extensively. He has heard the warning of physicians in cases in which it can, and in cases in which it should not, be used; that it must not be used in fevers or in hemorrhagic conditions, and great care must be exercised in using it, nevertheless he has used it in hemorrhagic conditions of the lung; he has used it in fevers and in similar conditions, and he does not know of any condition which is due to a tubercular process in which the judicious use of tuberculin is not beneficial. He has never seen any ill results from the judicious use of it.

He has had two cases of anaphylaxis following the use of tuberculin, but these occurred in days when very little was known about the use of tuberculin, and these cases occurred in forty-eight hours of one another. Both of them were alarming for a time ,and were the only two cases he has seen.

Dr. Michael Goldenburg related his experience experimentally with tuberculin five or six years ago, when phlyctenular disease was thought to be due to tuberculosis. He used then the Von Pirquet reaction and got a positive reaction in nearly every case, and concluded then that he could get that sort of reaction with other microorganisms made by the same process, such as the colon bacillus and staphylococcus. He made two Von Pirquet's and one colon vaccination, and the peculiar thing was he only had a reaction from the tuberculin and no reaction in the other. He did the same thing with the staphylococcus and got the same results. He then consulted a number of bacteriologists in Chicago, who thought probably he did not use the proper organism; that he should use an organism that has an intracellular secretion and suggested the use of the Klebs-Loeffler bacillus or the streptococcus, so he had this made up by the same process. He used these organisms in a great number of cases and did not get a reaction in any of them, but did get a reaction with the tuberculin.

While he is inclined to think the Von Pirquet reaction is of value, yet at the present we are unable to interpret the picture presented with any degree of value from a practical standpoint. According to some authorities, Wolf Eisner and others have on several occasions dissected out these tissues and have found a typical tubercle, tubercular caseation, giant cells and surrounding infiltration.

Dr. Richard J. Tivnen reiterated the remarks of Dr. Tydings relative to tuberculin, which is a very potent agent. He agreed with Dr. Dean that the patient should undergo a complete physical examination before subjecting him to the diagnostic dose of tuberculin and subsequent therapeutic treatment.

So far as the reactions are concerned, local and focal, general or constitutional, he has not had very many focal reactions. He had occasion to study a series of phlyctenular cases five years ago, and he then used the Von Pirquet test, and like Dr. Goldenburg, he had obtained a large number of positive responses to this test, but only a very small number of focal reactions.

In his judgment phlyctenular disease is a tubercular process. The syndrome these cases present is classical of the tubercular process. The crux about phlyctenules which causes trouble is their recurrence, and he thinks tuberculin is as useful in controlling these recurrences as any agent at our command. If he were asked what was the most important agent in the treatment of tuberculosis, not only in the eye, but in general work, he should put at the head of the list tuberculin. However, in the use of tuberculin the greatest care should be exercised, particularly with reference to the variations in the temperature curve, both before administering the diagnostic dose and during the therapeutic course of treatment. As to the dose itself, it is safer to banish the notion of these being a definite dose and rather individualize. Great wisdom should be shown in the selection of cases. The product is extremely important. He has used mostly the Lucius and Brunning product, which is quite generally employed. He had enjoyed Dr. Gamble's instructive and scientific paper very much indeed.

Dr. Gamble (in closing the discussion) said that the danger of dissemination of tubercle bacilli from the use of tuberculin is causing a reaction against its use in phthisis pulmonalis, and in tuberculous cavities in other parts of the body. Diagnostic doses cause an increase of tuberculous areas in the lungs, as shown by radiograms taken before and after subcutaneous injection. Tubercle bacilli are seen in the sputum after injection when not found before. It is in small isolated foci, as in the eye, that this treatment is of undoubted value and has come to stay.

Werli a few years ago demonstrated that the appearance of tubercle bacilli in chronic tuberculosis varies from that of the acute type. He spoke of them having a granular appearance. He devised a different stain by which he could identify them.

The author has never had anaphylactic symptoms from the use of tuberculin.

(To be continued.)

EFFINGHAM PHYSICIANS' AND DENTISTS' CLUB

Meeting held Feb. 11, 1916.

Meeting was called to order at 8 p. m., Feb. 11, in the office of Drs. Goodell, by President Bellchamber.

Dr. Wettstein read the scientific paper of the evening on "Hypertrophy of the Prostate Gland." Embryology and anatomy of the organ was briefly reviewed, stress being laid on the view of Sir Henry Thompson, Freyer and others that the middle lobe proper is a pathological product. That because of the direction of least resistance the prostatic enlargement extends upward, the urethra being carried with it, its inner orifice being raised to successively higher levels, above the base of the bladder, forming a pouch which carries an increased amount of residual urine as the trouble progresses, the early compensatory hypertrophy of the bladder, as the obstruction progresses, giving way to one of weakness, relaxation and decreased expulsive power, until finally the bladder may carry immense amounts of residual urine, the overflow escaping by dribbling. The bladder becomes trabeculated, unduly thinned in patches, which may become the site of diverticuli, sometimes of enormous size. The prostatic urethra becomes lengthened, flattened, tortuous or otherwise changed in accordance with the size and character of the prostatic overgrowth. Importance was given the fact that prostatic hypertrophy is not a physiologic or normal condition dependent on age, but strictly pathologic, the enlargement being a fibro-myomatous process, an adenomatosis, or an adenoma proper and not infrequently malignant. Ureter and kidney changes are common in the course of the obstruction. Due importance was given to the early symptoms, nycturia, retarded starting of the flow with diminished force of the stream, dribbling at the end of the act, etc., which being progressive, should always lead an early diagnosis; however, these symptoms do not proceed directly from the prostatic pathology, but from interference with bladder function. The bladder being merely a storage organ with power completely to empty itself at will, has this even tenor of its ways interfered with, and just in proportion to this interference by the progress of prostatic changes will symptoms develop and harass the patient up to the point of complete abeyance of the emptying power of the bladder, succeedingly progressive complications, and death.

Under diagnosis, it was urged (a) that after the patient voids urine, a catheter be passed into the bladder, to ascertain the amount of residual urine, (b) that a painstaking digital examination of the prostate and its surrounding area be made with the patient in the knee chest position and again by the same means, with the patient in a comfortable dorsal position, with bladder empty, a bi-manual examination (with one hand above the pubis) be made, as with a bi-manual examination of the uterus, the latter frequently giving a better idea as to the general size of the prostate as the former is frequently deceptive in that it does not reveal the real, but only the apparent size of the gland, as enormous masses projecting bladder-ward may not be appreciated properly at all by the usual digital-rectal examination alone. Besides size, the finger studies the comparative consistency, tenderness, irregularities, nodulations, general contour, etc., of the two lobes and no examination is complete without these methods. (c) Cystoscopy was urged as a valuable diagnostic measure, one which enables the examiner to see the gland from the bladder side, to study its size contour, peculiarities of development, surface changes, and the secondary bladder changes as well as of much importance in the pre-operative study. It was also shown that a small prostate of distorted or peculiar pathological contour may seriously interfere with bladder function.

In the pre-operative examination and preparatory treatment it was urged that the mechanically obstructed bladder is not the only feature of the case to be considered, but that the observation should be general, neglecting no part of the body. These patients are old, frequently more or less completely incapacitated by the urinary obstruction, retention and consequent general intoxication and chronic septicemic state which sooner or later supervenes. Contra-indications to operation, from the nervous system, heart and vessels, blood and general, as well as from other possible special states, should be excluded.

Then the kidney function is to be ascertained as completely as present methods will afford. Neglect of the last is criminal, as this detail has made it possible to bring the mortality rate much below that of the time when this was not done. After taking a complete inventory of the general condition of the patient, and of each system in particular, and finally as detailed and exhaustive an examination of the urinary system and functions as present methods afford, the risk is selected and the real preparation for operation begun under hospital regulations and observations. All deficiencies and abnormal conditions and states are corrected as far as possible.

The progressive urinary intoxication and resultant chronic bacteriemic or septicemic state must be abated largely to make a safe risk. This is done by preventing urinary retention, by the use of retention catheters, irrigations, the use of cultures of lactic acid bacilli in the bladder and general and special measures as indicated. These measures then will lead in the more important risks to the next preparatory step for prostatectomy, supra-pubic cystostomy under local anesthesia and bladder drainage until such time as it seems safe to complete the prostatectomy. This operative bladder drainage makes it possible for many patients to recover who would die promptly after the one stage operation.

DISCUSSION.

The discussion was general and exhaustive. The principal points emphasized were:

1. That the process of enlargement of the prostate is not physiologic, and necessarily concomitant to advancing years, but that it is pathological; hence the term senile hypertrophy as applied to the prostate is misleading.

2. That the result of the activating process on these tis-

sues varies; that it may result in an encapsulated adenoma proper, but much more frequently in hyperplastic states of the (a) chronic irritative, (b) fibro-myomatous, or (c) diffuse adenomatous (adenomatosis) types, and not uncommonly, in the (d) irregular, atypical, embryonal or malignant type of hyperplastic or neoplastic growth. The histopathology and the more or less uncertain pathologic differentiation of these various processes was gone into fully.

3. That the troublesome symptoms are not due primarily to the prostate, but secondarily to the urinary blockade.

4. That the mortality of operative treatment depends largely on the pre-operative preparation, it being true that most of these cases enter the hospital late. The determination of renal function as one step in the selection and preparation of these risks has been the greatest factor in reducing the post-operative death rate. The second factor of importance in reducing the post-operative death rate is bladder drainage and irrigations, at times the retention catheter method being ample, but in doubtful cases, by the two-step operation, i. e., opening into and draining the bladder from below or above, followed by a removal of the prostate through the same opening, at the second sitting. The importance of the vascular and nervous systems, general intoxications, infections, etc., were also emphasized as of importance in the preoperative study and preparation.

Following the discussion, it was moved, seconded and passed that a committee of three be appointed by the chair to arrange for a banquet for the members and their wives or lady friends, at the expense of the general fund of the club. Drs. Buckmaster, F. W. Goodell, and F. N. A. Hoffman were appointed. Dr. Hoffman then suggested that the next meeting be devoted to a consideration of the proposed new office building, which was accordingly arranged.

Adjourned.

F. BUCKMASTER, Secretary.

Meeting held Feb. 25, 1916.

The Effingham (City) Physicians' and Dentists' Club meeting, Feb. 25, 1916, at City Hall.

President Bellchamber opened the meeting at 8:15 p. m.

Dr. Hoffman discussed the idea of a co-operative office building primarily for and by the doctors, but including other professions and office men as well. He demonstrated the plans of a two-story building consisting of thirty-six large, airy office rooms, on the two floors, the wide hall extending throughout the building on each floor, serving as the common reception hall for all private offices. The building corporation to furnish the offices with hot and cold water, light, heat, telephone, janitor service, lady attendants for the reception halls, a common laboratory for the physicians and dentists, and a large library room for the legal profession on the second floor.

It was shown that this co-operative plan would save the doctors and dentists much expense money each year, on office, etc., alone, as well as to bring them into one common building under a co-operative plan of economics and ethics which would undoubtedly materially increase the percentage of collections of each; as the doctors' and dentists' office expenses are equal to the interest on a sum probably much above $100,000. The lawyers and other office men's office expenses are likewise disproportionate to the accommodations received. Many other points were brought out favoring such a plan, especially from the economic advantage of the doctor. But two members spoke discouragingly of the plan.

The attorneys and the secretary of the Merchants' Association favored the plan very much. At the close of the discussion Drs. Hoffman and Buckmaster and Attorney Frank Taylor were appointed by the chair as a special committee to further the plan and to report at the next meeting, March 10.

Adjourned.

F. BUCKMASTER, Secy.

GREENE COUNTY MEDICAL SOCIETY

The Greene County Medical Society met in regular session at Carrollton, Ill., Feb. 11, 1916, at the Illini Club. Called to order at 11:30 a. m., by the president, C. R. Thomas.

Sixteen members were present. Visitor, T. J. Pitner of Jacksonville, Ill.

The minutes of the previous meeting were read and approved. Communications from Dr. J. A. Day and Dr. C. D. Center were read and ordered filed.

The following resolution, read by H. W. Chapman, was unanimously adopted:

Resolved, That the efforts of Dr. C. St. Clair Drake, Secretary of the State Board of Health, to secure an amendment to the Medical Practice Act, whereby reciprocity may be established with other states, by which all physicians regularly licensed to practice medicine in this state may be permitted to participate are hereby most heartily endorsed by this society as an act of simple justice to the profession of this state; be it further

Resolved, That a copy of this resolution be forwarded to Dr. Drake, and also to our state senator and representatives, and that the latter are hereby most earnestly urged to work and vote for this amendment.

Dr. Hensler stated that Dr. Vedder, president of the Greene County Dental Society, proposed a joint meeting for discussion of subjects in common and on motion Dr. Vedder was invited to come to the session and present the matter.

The following resolutions, recommended by the president of the Illinois State Medical Society, approved by the resolution committee, L. O. Frech and R. O. Hawthorne, were unanimously adopted:

The Greene County Medical Society branch of the Illinois State Medical Society at a regular meeting on February 11, 1916, unanimously adopted the following resolutions:

WHEREAS, The President and Honorable Secretary of War have announced in the public press that a scheme for the reorganization of the army will be presented to Congress at its coming session, which will materially increase the military establishment, and

WHEREAS, We recall the indignant protests and criticisms of the nation at the failure to provide adequately for the sick and wounded at the beginning of the Civil War and the Spanish-American War, and

WHEREAS, It is known that this failure was due to

the lack of a sufficient number of medical officers in the regular army and a means for increasing the medical establishment at the outbreak of war, and

WHEREAS, In spite of the lessons of the Spanish-American War, which were fresh in mind in the reorganization of the army in 1901, the Medical Department was not properly increased and no provision was made for its expansion in time of emergency, and

WHEREAS, To correct the defects in the 1901 legislation, subsequent legislation was necessary, in which the medical profession of the United States was called on to assist; therefore, be it

Resolved by the Greene County Medical Society that the Secretary of War be petitioned to make adequate provision in the reorganization of the army about to be presented to Congress for a sufficient number of medical officers for the regular establishment, which provision shall aggregate a proportion of medical officers of at least seventy-five hundredths of one per cent. of the enlisted strength of the army, or such number as the Surgeon-General of the army may deem necessary, and be it further

Resolved, That the secretary be petitioned to make provision in this reorganization for the expansion of the Medical Department at the beginning of war, by calling into service in the Medical Reserve Corps physicians from civil life who have been instructed in their special duties as medical officers in our summer camps, and otherwise as the War Department may see fit.

Signed: L. O. FRECH,
R. O. HAWTHORNE,
H. A. CHAPIN, Sec'y.,
Committee.

After which the society adjourned.

Meeting called to order at 2 p. m.

Dr. Pitner of Jacksonville, on invitation of the society, read a very interesting, practical and instructive paper on "Pneumonia." The paper was discussed by all present and on motion of H. A. Chapin the thanks of the society were extended to Dr. Pitner for his paper.

Dr. Vedder of the Dental Society being present, stated that he would be pleased to have the Greene County Medical Society appoint a committee to arrange for a joint meeting and program for the several counties in this district at some future time, to be decided upon by the committee. Motion made and seconded that the regular program committee be authorized to arrange for such meeting and co-operate with the Dental Society, after which the meeting adjourned.

H. A. CHAPIN, *Sec'y.*

IROQUOIS-FORD MEDICAL SOCIETY

The Iroquois-Ford Medical Society held the regular quarterly meeting March 7, 1916, at the Middlecoff Hotel, Paxton, Ill. Twelve members and four visitors were present.

After enjoying a good dinner the society met in the parlor where, in the absence of the president, the meeting was called to order by Dr. O. O. Hall, the vice-president.

The minutes of previous meeting were read and approved.

On motion Dr. Tresona of Gibson City, Ill., was elected to membership. Dr. W. E. Burgett's application for membership was presented and on motion the by-laws were suspended and he was elected to membership.

The first paper on the program was presented by Dr. W. L. Cottingham, "Vaccine and Serum Therapy," and it was discussed by Drs. Stevens, Cantrell, Smith, Walker and others.

Dr. H. R. Struthers' paper on "Gastritis" was read by Dr. Stevens. Dr. Thomas B. Cantrell, president of the McLean County Medical Society, read a paper on "Some of Our Duties to the Public."

A unanimous vote of thanks was extended to Dr. Cantrell for his most excellent paper.

On motion meeting adjourned.

D. W. MILLER, *Secretary.*

LAKE COUNTY

Lake County Medical Society met in regular session at the Hotel Washburn in Waukegan on Thursday evening, March 9.

Our councilor, Dr. Clyde D. Pence, who was to have been with us at this meeting, was unable to be present, owing to illness in his home. This was one of the big meetings of the year, if members present signify anything, there being present twenty-three.

Minutes of our preceding meeting were read and approved. Dr. Barker reported for the committee on "Fee bill," and on motion this committee was retained and instructed to report further at our next meeting. Carried.

Motion by Dr. Taylor that the chair appoint a committee of three to draw up resolutions of respect on the death of Dr. W. C. Bouton, same to be engrossed on our records and a copy of same sent the family. Motion carried and the following were selected to act on the committee: Drs. Taylor, Tombaugh and Roberts.

The following members were unanimously elected to represent us at the meeting of the State Medical Society: Delegate, J. P. O'Neil of Highland Park; alternate, J. L. Taylor of Libertyville.

The application of Dr. F. H. Martin of Libertyville to become a member of our society having been acted on favorably by the Board of Censors was read and on motion he was unanimously elected a member.

We then listened to the following interesting program:

"Acidosis and Its Relation to Lung Infection in Children," Dr. H. J. Ullmann.

"Diagnosis and Treatment of Diabetes," Dr. M. Herschleder.

"Arthritis Deformans," Dr. L. H. Tombaugh.

Following this a "Dutch lunch" was served and we indulged in an hour's social intercourse. Meeting

adjourned to meet in Libertyville, Thursday evening, April 13, 1916.

C. S. AMBROSE, *Secretary.*

MORGAN COUNTY

The Morgan County Medical Society met March 9, at 8 p. m., at library, Jacksonville, Ill.

Meeting called to order by T. O. Hardesty, the president. Minutes of previous meeting read and approved. Case reports by Drs. Woltman, Bowe, Black, Cole, Gregory, Frank and Adams. Dr. Black called attention to the lack of current literature advocating disinfecting of sharp instruments by use of carbolic acid and alcohol.

The paper of the evening was read by Dr. A. L. Adams on "Tonsils and Their Relation to Disease." The anatomy of the tonsils and the surrounding tissue given in minute detail, showing the anatomical conditions which facilitate the maintaining of infections in the tonsils. Also showing the relations of the tonsils to the Eustachian tube and the tendency of extension of infections in the tonsil to the middle ear. Also showing the tendency for general diseases to follow primary diseases in the tonsils. Referring especially to nephritis, pericarditis, endocarditis, arthritis, chorea, neuritis, tuberculosis and osteomyelitis.

The Doctor advocates complete removal of the tonsil in all chronic infections of the tonsil, unless otherwise contraindicated. In young children there is often hyperplasis, which is not sufficient indication for removal in all cases. If there should be adenoids in such cases the adenoids should be removed and probably the tonsil later.

The paper was discussed freely.

An announcement was made by the president that at the next meeting a vice-president would be elected to take the place of Dr. E. A. Foley, who has removed to Watertown.

The topic of the next meeting was announced by the president: "A Symposium on Tuberculosis."

Meeting adjourned.

T. G. MCLIN, *Secretary.*

ST. CLAIR COUNTY

The monthly meeting of the St. Clair County Medical Society was held at the Y. W. C. A. Hall, East St. Louis, March 2, 1916, with President B. H. Portuondo in the chair. There were nineteen members present, also Drs. Fiegenbaum and Ferguson from Madison county, and Drs. Caron, Smith, Spain and Melleton from St. Louis.

Dr. J. F. Percy, ex-president of the State Society, read a paper, illustrated with stereopticon views, on "Inoperable Carcinoma of the Uterus and Its Treatment by Heat." This highly interesting paper was discussed by Drs. Carson, Wiggins, Lillie, Housh and several others.

Three applications for membership were, on recommendation of the board of censors, laid over to the next meeting, the first Thursday in April, at Belleville, Ill.

A. E. HANSING, *Secretary.*

WHITESIDE COUNTY

Whiteside County Medical Society had a most interesting session at Sterling Club Rooms, Sterling, Ill., March 16, 1916. Dr. George T. Palmer of Springfield, Ill., under the auspices of the State Board of Health, gave an especially instructive and helpful addrss on "Public Health Legislation in Illinois."

This was a public meting to which had been invited county, township and city officials. Editors of the newspapers of the county and others interested in this subject. Sterling Woman's Club was also represented. Several of the county officers showed a marked interest and took part in the discussion which followed the address. If other county societies would like something along this line this plan is certainly one to be recommended.

HANNAH NICHOLS SCHMALING,
Secretary-Treasurer 1916.

Personals

Dr. and Mrs. Casey A. Wood are visiting in California.

Dr. and Mrs. Edmund Andrews have returned from Florida.

Dr. Marie A. Motis has been appointed health commissioner of Cicero.

Dr. G. E. Wright has resigned as superintendent of the Isolation Hospital.

Dr. R. W. Binney of Granite City, spent February in New York attending clinics.

Dr. John H. Siegel is said to be making an enviable record as mayor of Collinsville.

Dr. Heber Robarts has been elected president of the Safety First Society of Belleville.

Dr. Frank Billings has been appointed visiting lecturer on medicine at Harvard University.

Dr. E. Joe McEntire, Erie, has been under treatment in the Presbyterian Hospital, Chicago.

Dr. Clarence M. Cheadle, Rockford, has given several lectures on conditions in Serbia recently.

Dr. Edmond H. Ames, Antioch, a veteran physician of Lake County, has become totally blind.

Dr. James A. Cline, Joliet, underwent operation for disease of the throat at Wesley Hospital, March 7.

Dr. Lorenz Oatman has closed his drug store at Edwardsville and has resumed practice in Collinsville.

Dr. Percy J. Carroll has resigned as surgeon of the Macon County Hospital, Decatur, and will practice in East St. Louis.

The home of Dr. James J. Moran, Spring Valley, was destroyed by fire March 8, with a loss of between $8,000 and $10,000.

Dr. Theodore H. Trappe, Hecker, was thrown from his horse while making a professional call February 21, and sustained severe bruises.

Dr. George P. Gill, Rockford, gave an interesting account of his experiences in the war zone before the University Club, Rockford, March 9.

Dr. Jacob J. Mendelsohn has resigned as resident physician of the St. Charles School for Boys and will resume private practice in Chicago.

Dr. Edward A. Foley of the Jacksonville School for the Deaf has been appointed assistant superintendent of the Watertown State Hospital.

A luncheon was given at the Monroe Center Hotel, March 8, in honor of Dr. Henry G. Davis, who is about to leave on an extended trip to Alaska.

Dr. E. L. Dennison, Chicago, was exonerated of the charge of performing an illegal operation, the woman in the case admitting that the charge was untrue.

Dr. Frank E. Hansen, ambulance surgeon at the Shakespeare Avenue station, was seriously injured in a collision between the ambulance and a street car March 8.

Dr. John A. McGill, for three years president of the Illinois St. Andrews Society, was tendered a complimentary dinner by the organization at the Hotel La Salle March 1.

Dr. Howard O. Shafer has announced that he will give up his work in Chicago to manage the hospital established in Rochester, Ind., by his father, the late Dr. Winfield S. Shafer.

Dr. Flint Bondurant, Cairo, has been appointed physician for the Children's Home, succeeding Dr. John J. Rendleman, Cairo, who has acted in that capacity for twenty-five years.

Dr. H. J. Freemmel, assistant physician of the Lincoln State School and Colony, resigned the state service April 1, and will resume practice in Chicago. Temporary address, 3848 Flournoy street.

Dr. Walter W. Armstrong has been transferred from the position of chief of the bureau of food inspection to that of supervising health officer, Chicago Department of Health, and will resume practice.

Members of the National Dairy Council, representing every branch of that industry, held a memorial meeting at the Hotel Sherman, February 28, to pay tribute to their late president, Dr. Henry Baird Favill.

Dr. Raymond W. McNealy has been appointed a member of the surgical staff of Cook County Hospital to fill the vacancy resulting from the departure of Dr. Harry M. Richter for service with the German Hospital unit.

Dr. E. W. Fiegenbaum, secretary of Madison County Medical Society, completed forty years of continuous practice in Edwardsville February 22, and we will wager that there has not been a better secretary of a county society during the forty years.

The fees of physicians acting as commissioners before the Cook County Court were reduced from $5 or over for each case examined to $5 per day, by the county board. The board only allowed $120 to ten physicians whose claims totaled $1,170.

Dr. Van Arsdale of Park Ridge, is said to have filed a unique claim against the estate of a patient who suicided in the doctor's home, Christmas eve. It was no doubt quite inexcusable on the part of the decedent to pull off such a stunt on the "night before Christmas."

Dr. M. O. Heckard, registrar of vital statistics, Chicago, recently mailed birth report blanks, registration blanks and copies of the new vital statistics law to the 6,000 physicians and midwives in the city. It is up to every physician in the state to register with the local registrars as soon as the blanks are received.

Dr. Clesson C. Atherton, assistant superintendent of the Watertown State Hospital, who has been transferred to the Jacksonville State Hospital, was given a farewell entertainment February 28, at which Dr. Joseph A. Campbell, superintendent of the institution, presented Dr. and Mrs. Atherton with a handsome silver service, a gift from the employes.

News Notes

—If the milkman leaves no lacteal fluid for your "Tom and Jerry" during the milk strike you might cultivate a thirst for Cardui cocktails. They are said to have the real kick.

—Dr. Eva Shaver, Chicago, a graduate of the "National Medical University" has been convicted of murder as the result of an illegal operation.

—Dr. P. J. H. Farrell of Chicago, has been recommended to President Wilson by Senator Lewis for appointment as assistant secretary of war.

—Columbia University has decided to establish a four-year dental course in connection with its College of Physicians and Surgeons in New York City. It will be the first university dental school in the city and the first to give a four-year course in the state.

—Dr. John W. Murphy and Martin H. Urner, Cincinnati, Ohio, have taken over the eye, ear, throat and nose practice of Dr. Thos. M. Stewart, who removes to Oconomowoc, Wis., as one of the staff of the new Edgemoor Sanitarium for the treatment of mental and nervous diseases.

—The Kewanee Physicians' Club, at a recent meeting, endorsed heartily the proposed issue of bonds to finance the new waterworks. The members pledged themselves to support the plan of the mayor and city commissioner in any other reasonable plan to safeguard the water supply of the city.

—Federal indictments were returned before Judge Landis March 25, against George B. Abbott, Samuel D. Katz and George J. Katz, in business as the Dr. G. B. Abbott company, for alleged fraud in connection with their "home treatment" medical business, alleged by the government to be a fraudulent cure-all.

—St. Anthony's Hospital, Rock Island, reports 575 surgical cases, including 276 major operations, during the year ended March 1, with only four deaths. Officers were elected for the year as follows: President, Dr. W. D. Snively; vice-president, Dr. Joseph De Silva; secretary, Dr. A. E. Williams.

—"Clean Living," published by Dr. John Dill Robertson, Commissioner of Health of Chicago, makes its initial appearance with the April number. It is attractive in cover design and full of meat. Its distribution will be made through large industrial plants and employers of labor. The first issue will be 25,000 or more.

—Drs. Clara Harrison Town and Josephine Young are in charge of a new Orthogenic School for children mentally defective in particular lines at 620 S. Hermitage avenue, Chicago. It is under the direction of Rush Medical College, and is supported by a fund of $3,000 donated by Mrs. Cyrus H. McCormick, Sr.

—Dr. Carl W. Kimery of Allendale, was the victim of a whitecap mob March 10, said to be avenging an attack he made on his wife while intoxicated. Some months ago the doctor's office and drug store were burned supposedly by incendiaries. He might suspect that he is not popular in that community.

—Alleged faulty designation of Mercy Hospital in the will of Charles H. Haines, St. Charles, may cost the institution a two-thirds interest in the estate which is appraised at one-half million dollars. Relatives not mentioned in the will have filed an answer to the partition suit instituted by the hospital and claim that "the Mercy Hospital of Chicago" named in the will does not exist.

—Dr. Wm. H. Gross, commissioner of health of Quincy, asks the co-operation of the public in the fight on contagious diseases. He said that cases of smallpox were concealed and that measles were more virulent and caused more deaths than the mild form of smallpox now prevailing. Measles have been prevalent at Springfield, Kewanee and Hoopeston.

—Dr. Edwin O. Jordan has been appointed chairman of the committee on sanitation and hygiene of the University of Chicago, and Dr. Dudley Billings Reed has been appointed health officer. Dormitories, fraternity houses, and the university dining halls will be kept under close inspection, and a system of health conferences between students and the medical examiners will be maintained.

—Medical students of the University of Chicago and Rush Medical College are co-operating in a

plan to establish a research scholarship in the University as a memorial to Henry Ginsburg, an alumnus of University of Chicago of 1914, and a member of the senior class of Rush Medical College who died at Michael Reese Hospital March 9. It is planned to raise $1,500 for the endowment of this scholarship.

—The American Journal of Gastro-Enterology has combined with the Proctologist and hereafter will be published (beginning with the March number, first of year) as the Proctologist and Gastroenterologist, from St. Louis. Dr. Lewis Brinton, Philadelphia, and Dr. Anthony Bassler, New York, will have editorial charge of Gastroenterology; Dr. A. L. Benedict, Buffalo, editor of Dietetics; Dr. Rollin H. Barnes, St. Louis, will be managing editor and publisher.

—The council of the Chicago Medical Society in committee of the whole recommended that the findings of the Ethical Relations Committee in the case of Dr. Haiselden be upheld March 14. A press dispatch to the effect that Dr. Haiselden has a contract with a moving picture company as leading actor in a play based on his eugenic theories at a salary of $25,000, is of real interest in this connection. The unregenerate say everyone has his price and would flout "ethics" if the price came across. How many of us, when the tempter comes, say, "Get t'ell out of here."

—The new Central Hospital, recently built by the Illinois Central Railroad Company at Fifty-ninth and Jackson Park avenue, at a cost of $360,000, was opened with formal ceremonies March 4. The guests of honor were Drs. Joseph C. Bloodgood, Baltimore, and William A. Evans, Chicago. The hospital is up to date in its equipment, and while primarily intended for the use of the railroad employes, other patients will be admitted when space permits. Dr. Guy G. Dowdall, chief surgeon of the railroad, is in charge of the institution. The hospital was opened to receive patients on March 5.

—The Cook County Hospital has been so crowded that Warden Smith reported to the members of the county board it was impossible to prevent cross infection which caused the death of a patient, Eddie Hyman, admitted with scarlet fever, who contracted measles and diphtheria. This is an intolerable state of affairs inasmuch as bonds to the amount of $300,000 were voted in April, 1912, and $350,000 more in April, 1914, for a contagious disease hospital. The contract for the ward building was let September 24, 1914, and still the hospital is not ready. Part of the delay was due to the difficulty in securing a location.

—The United States Civil Service Commission announces an examination for the position of chief statistician for vital statistics (male) in the Bureau of the Census, to be held April 25, 1916. Salary, $3,000. Applicants must be between 30 and 50 years of age. They must have four years' experience in charge of vital statistics of a city or state or in position of similar importance, and must be graduates of recognized medical school. Persons desiring this examination should apply at once for form 1312 to the U. S. Civil Service Commission, Washington, D. C., or to the secretary of the U. S. Civil Service Board at Chicago, or in the other principal cities.

—One of the large department stores in Chicago where the better babies contest was staged March 4-11, was fairly swamped by the swarms of babies and their mothers. The advisability of bringing together such a large number of infants when contagious diseases are prevalent and especially in a building that is always crowded, is more than questionable. Fifty-five of the thousands of babies examined were presented with blue ribbons on the 25th, inst., as evidence of superlative development, physical and mental. Miss Mary Campbell, one of the judges, estimated that there were over 10,000 super-normal babies in Chicago, and suggested that they should receive special training to develop the "superman."

Marriages

Abraham Risel Hollender, M. D., to Miss Anna Winsberg, both of Chicago, March 1.

Clarence Homer Kemp, M. D., Elmwood, Ill., to Miss Pauline Miller of Lacon, Ill., February 25.

Harry S. Seiwell, M. D., former medical director, Alton State Hospital, to Miss Katherine Sparks of Alton, February 16, at St. Louis.

Obituary

THEODORE B. SACHS, M. D.

Dr. Sachs was born in Dvinsk, Russia, May 2, 1868. At the age of 21 years he came to America, after completing a course in law. He was graduated from the Medical Department of the University of Illinois in 1895; served as house physician at Michael Reese Hospital for two years. Died from an over-dose of morphin, self-administered, at Edward Sanatorium, Naperville, April 2, 1916.

THEODORE BERNARD SACHS, M. D.

He was early attracted to the study of tuberculosis, both from a medical and sociological standpoint.

Investigated tuberculosis conditions in congested districts of Chicago. Two investigations, first covering period of 18 months, May 1, 1902 to November 1, 1903; second, 2 years, January 1, 1906 to January 1, 1908. Charts exhibited at the International Tuberculosis Congress in Washington in 1908.

Studied the problem of children of tuberculous parents. A study of several hundred families. Results published in the *Journal A. M. A.*, under the title of "Children of the Tuberculous."

Founder of the first tuberculosis clinic in Chicago (tuberculosis clinic of the West Side Dispensary in 1900).

One of the founders of the Chicago Tuberculosis institute: president at time of death.

Organizer of the Committee on Factories of the Chicago Tuberculosis Institute, the first agency to start a systematic campaign for medical examination of employes. The committee co-operates at present with numerous industrial establishments, employing in all about 250,000 people.

Founder of the Robert Koch Society for the study of tuberculosis.

Had charge of the building plans of the Chicago Municipal Tuberculosis Sanitarium. Member of its board of directors 1909-1913; president 1913-1916. Resigned in 1916.

Conducted a campaign for the establishment of the Winfield Tuberculosis Sanitarium of which he was physician in chief for several years; head of its consulting staff at time of death.

Medical director and head of the Edward Sanatorium at Naperville, Illinois.

President of the national association for the Study and Prevention of Tuberculosis, 1915.

Chairman of the Advisory Committee of the County Tuberculosis Institutions since 1912. Detailed report of the committee published by the Chicago Tuberculosis Institute.

Chairman of the committee on union labor of the National Association for the Study and Prevention of Tuberculosis.

Chairman of the committee on Hospitals for Advanced Cases, appointed in 1912, by the National Association for the Study and Prevention of Tuberculosis. This committee investigated hospitals in the larger cities of this country three years ago (report published by the National Association).

Dr. Sachs' tragic death following so soon after his resignation as head of the Municipal Tuberculosis Sanitarium aroused the sympathy of leaders in Chicago's social life and shocked men everywhere who are interested in the fight against tuberculosis. The various investigations now under way to determine the conditions which led

to his resignation and death will be watched with interest by the public.

Deaths

AUGUST HILARY MEATH, M. D., Chicago; Rush Medical College, 1888; aged 53; died at his home, Feb. 16, from lobar pneumonia.

WILBUR A. BEARD, M. D., Chicago; Hospital College of Medicine, Louisville, 1901; New York Homeopathic Medical College, New York City, 1904; aged 39; died about Feb. 2.

GEORGE L. BEACH, M. D., Chicago; Hahnemann Medical College, Chicago, 1883; aged 55; died in Hahnemann Hospital, Chicago, March 8, from carcinoma of the prostate.

GEORGE EDWARD FLOOD, M. D., Chicago; Detroit Medical College, 1879; aged 59; died in the Washington Park Hospital, Chicago, Feb. 28, from uremia, after a surgical operation.

WILLIAM LEET KREIDER, M. D., Prairie City, Ill.; Rush Medical College, 1859; aged 84; for more than sixty years a practitioner of Prairie City; died at his home, Feb. 19, from cerebral hemorrhage.

HARRY DAVID JAMES, M. D., Chicago; Dearborn Medical College, Chicago, 1907; professor of ophthalmology in the Chicago, Eye, Ear, Nose and Throat Hospital; died at his home, Jan. 27, from pneumonia.

LOUIS N. BARLOW, M. D., Chicago; Northwestern University Medical School, Chicago, 1885; aged 54; founder of the Forest Beach Tuberculosis Sanitarium, soon to be opened in Michigan; died at his home, March 24.

AMOS SAWYER, M. D., Hillsboro, Ill.; Washington University, St. Louis, 1870; aged 79; one of the oldest practitioners in Montgomery County; retired a few years past on account of poor health; formerly active in medical organization; died at his home, March 18, from senility.

JAMES A. MARTIN, M. D., Palestine, Ill.; Medical College of Ohio, Cincinnati, 1879; aged 60; a Fellow of the American Medical Association and for many years a practitioner and druggist of Palestine; died at his home, March 4, from heart disease.

RAYMOND JESSE NATE, M. D., Chicago; Rush Medical College, 1892; aged 45; was fatally injured, March 10, by the falling of a weighing machine in front of a drug store at Thirty-ninth street and Cottage Grove avenue, and died while being taken to the Lakeside Hospital.

DANIEL ELISHA FOOTE, M. D., Belvidere, Ill.; University of Buffalo, N. Y., 1851; aged 87; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for sixty years a resident of Belvidere; in the early fifties, surgeon of the Fifty-Seventh Infantry, New York State Militia; for several terms coroner of Boone County and a member of the school board of Belvidere; died at his home, Feb. 22.

WILLIAM C. BOUTON, M. D., Waukegan, Ill.; Northwestern University Medical School, 1889; aged 50; formerly a Fellow of the American Medical Association; a Fellow of the American Academy of Medicine, a member of the Illinois State Medical Society, and formerly president of the Lake County (Ill.) Medical Society; secretary of the Lake County Tuberculosis Institute; died at his home in Waukegan, March 1, from paralysis.

NEW AND NON-OFFICIAL REMEDIES.

During February the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Nonofficial Remedies:

W. L. Cummings Chemical Co.: Radium Bromide, Radium Carbonate, Radium Chloride, Radium Sulphate.

Borcherdt Malt Extract Co.: Borcherdt's Dri-Malt Soup Extract, Borcherdt's Dri-Malt Soup Extract with Wheat Flour, Borcherdt's Soup Powder.

Since publication of New and Nonofficial Remedies, 1915, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with New and Nonofficial Remedies:

Lyster's Prepared Casein Diabetic Flour.—Milk casein to which has been added a leavening mixture, sodium chlorid and saccharine. Used in the form of muffins in diabetes, etc. Lyster Brothers, Andover, Mass. (Jour. A. M. A., Feb. 26, 1916, p. 653.)

Antistreptococcus Serum Rheumaticus, Squibb.—Produced from strains of streptococcus from the joints and blood cases of rheumatism. The serum is intended for use in cases of acute articular rheumatism. E. R. Squibb & Sons, New York. (Jour. A. M. A., Feb. 26, 1916, p. 653).

Book Notices

A HANDBOOK OF INFANT FEEDING, by Lawrence D. Royster, M. D., Attending Physician, Bonney Home for Girls and Foundling Ward of the Norfolk Society for the Prevention of Cruelty to Children; Physician in charge of King's Daughters' Visiting Nurse Clinic for Sick Babies. Illustrated. Price $1.25. C. V. Mosby Company, St. Louis.

A book gotten up to save time required to read larger works, furnishing only the essentials necessary for infant feeding. As such it fulfills its purpose.

DIAGNOSTIC METHODS. A Guide for History Taking, making of routine physical examinations and the usual laboratory tests necessary for Students in clinical pathology, hospital internes and practicing

physicians by Herbert Thomas Brooks, A. B., M. D., Professor of Pathology, University of Tennessee, College of Medicine, Memphis, Tennessee. Third edition, revised and rewritten. Price, $1.00. C. V. Mosby Company, St. Louis.

A short manual of diagnostic methods, concise and up to date; especially useful for the man not doing very much laboratory work.

Social Travesties and What They Cost, by D. T. Atkinson, M. D. Vail-Ballou Co., New York, $1.00.

An attempt, as stated by the author, to show the results of present day ignorance of the laity, and the disregard paid to sex matters as a whole both by physicians and laity, with the dire results that follow. It is a very readable book, and causes one to pause and think of where to place the blame. Although a small book, it covers the subject thoroughly and cleanly, with a plea for a campaign of education along these lines.

Candy Medication, by Bernard Fantus, M. D., Professor of Pharmacology and Therapeutics, College of Medicine, University of Illinois, Chicago. Price, $1.00. C. V. Mosby Co., St. Louis, Mo.

This author has given to the profession in this small volume a method of prescribing drugs in a candy form. The methods of manufacturing and formulæ are given. The formulæ mostly are gotten up for children, for whom this method of presenting medicine is especially valuable. For those desirous of trying this method of treatment, this manual is recommended.

The Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume V, Number I (February, 1915). Octavo of 194 pages, 33 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Published bi-monthly. Price per year: Paper, $8.00; cloth, $12.00.

This number of clinics, which has been edited by Dr. P. G. Willern, Jr., of Philadelphia, contains twenty-four articles. They are all presented in the usual style of Dr. Murphy, and should prove valuable to the readers of this volume of Clinics.

New and Non-Official Remedies, 1916, containing Description of the Articles which have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association prior to January 1, 1916, Chicago, American Medical Association.

This volume, 1916, as in previous volumes, contains a list of medicinal substances which have been examined and accepted by the Council on Pharmacy and Chemistry of the American Medical Association, for inclusion in the New and Non-Official Remedies. Changes of dosage forms and the omission of some substances in the 1915 volume are noted. It is a book that should be on the desk of every physician.

Principles and Practice of Physical Diagnosis. By John C. DaCosta, Jr., M. D., Assistant Professor of Medicine, Jefferson Medical College, Philadelphia. Third edition, thoroughly revised. Octavo of 589 pages with 243 original illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, $3.50 net.

With the issue of this edition we have a complete and up-to-date text book on the Principles and Practice of Physical Diagnosis. Considerable new matter is noted, chiefly the newer technical methods, and diseases of the lungs, the heart, and the stomach. Vertebral percussion, sphygmomanometry, electrocardiography, and gastric radiography are subjects that have received due attention. Much other new matter is noted, and the discussion from a clinical standpoint on certain affections of the heart is timely. It will undoubtedly be received with as much, if not more, favor than the previous editions, which in their time were standard works on physical diagnoiss.

Sexual Impotence, by Victor G. Vecki, M. D., Consulting Genito-Urinary Surgeon to the Mt. Zion Hospital, San Francisco. Fifth edition, enlarged; 12mo. of 405 pages. Philadelphia and London: W. B. Saundery Company, 1915. Cloth, $2.25 net.

The need a fifth edition emphasizes the importance of the subject, and the popularity of this particular work by an author who has devoted long years to its study. The book is exceedingly well written and covers the subject thoroughly.

This book should be read and earnestly studied, as the general practitioner is generally in the dark when attempting the treatment of this malady. Indications for treatment and the various methods of treatment are thoroughly gone into, so that the general practitioner may undertake the care of those unfortunates in a confident and rational manner.

Venereal Diseases, a Manual for Students and Practitioners, by James R. Hayden, M. D., F. A. C. S., Professor of Urology at the College of Physicians and Surgeons, Columbia University, New York; Visiting Genito-Urinary Surgeon to Bellevue Hospital; Consulting Genito-Urinary Surgeon to St. Joseph's Hospital, Yonkers, New York. 12 mo., 365 pages, with 133 illustrations. Cloth, $2.50 net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

This issue of Hayden's Venereal Diseases presents considerable improvement, both in subject matter and illustrations, over the previous editions. The fact of a fourth edition stamps its popularity. It is in fact one of the best manuals on this subject, and contains the fruits of the author's own personal experience, including only those methods of diagnosis and treatment which he has found useful and efficient. There are 36 chapters, of which 18 are on syphilis, 9 on gonorrhea, and 9 on other forms of venereal diseases. As a manual it can be recommended to the student and practicing physician.

Cancer of the Stomach. A Clinical Study of 921 Operatively and Pathologically Demonstrated Cases, by Frank Smithies, M. D., Gastro-Enterologist to Augustana Hospital, Chicago. With a chapter on the Surgical Treatment of Gastric Cancer, by Albert J. Ochsner, M. D., Professor of Clinical Surgery in the University of Illinois. Octavo of 522 pages, with 106 illustrations. Philadelphia and London: W. B.

Saunders Company, 1916. Cloth, $5.50 net; Half Morocco, $7.00 net.

A monograph on cancer of the stomach appearing at this time is very welcome, and when it is as complete and thorough as the present it is doubly welcome. Much has been written on cancer of the stomach in the last decade, but this is the first complete monograph on this subject in the last ten years.

The exposition of the subject is based upon a study of 921 cases that were operated upon and demonstrated pathological. Case reports are frequently presented to demonstrate some particular observations. The chapters on diagnosis are especially valuable and ought to help towards an early diagnosis which offers the only hope for the patient. Much emphasis is placed upon the relation of chronic gastric ulcer and cancer.

A chapter on the operative treatment by Dr. Ochsner further strengthens the value of this volume. Dr. Ochsner is exceedingly thorough and presents much valuable information on the surgical side of the treatment of gastric cancer.

The illustrations play an important part in the presenting of the subject. For those seeking the best work on gastric cancer this book can be earnestly recommended.

OBSTETRICS. A Practical Text-book for Students and Practitioners, by Edwin Bradford Crazin, A. B., A. M. (Hon.) M. D., F. A. C. S., Professor of Obstetrics and Gynecology, College of Physicians and Surgeons, Columbia University, New York; Attending Obstetrician and Gynecologist to the Sloane Hospital for Women; Consulting Obstetrician to the City Maternity Hospital, the Italian Hospital and the New York Nursery and Child's Hospital; Consulting Gynecologist to the Presbyterian Hospital, the Roosevelt Hospital, the Lincoln Hospital, the New York Infirmary for Women and Children, and to St. Luke's Hospital, Newburgh, N. Y., Assisted by George H. Ryder, A. B., M. D., Instructor in Gynecology, College of Physicians and Surgeons, Columbia University, New York; Assistant Attending Obstetrician, Sloane Hospital for Women; Associate Surgeon, Women's Hospital.

This new work on obstetrics is the result of the author's large experience at the Sloane Hospital for Women. Though very complete, it is not too large. The subject matter is presented in an interesting manner, making it very readable. Extensive statistics, bibliography and discussions have been excluded, although important articles are referred to. His method of dividing subject is somewhat different from most authors, but his reasons for doing so are apparently justifiable. The illustrations are exceedingly well made, and mostly original. It bids fair to become one of the popular text-books of obstetrics.

TREATISE ON FRACTURES, by John B. Roberts, A. M., M. D., F. A. C. S., Professor of Surgery in the Philadelphia Polyclinic and College for Graduates in Medicine; Sometime Chairman of Fracture Committee of American Surgical Association; Membre de la Societe Internationale De Chiurgie; and James A. Kelly, A. M., M. D., Attending Surgeon to St. Joseph's, St. Mary's and St. Timothy's Hospitals; Associate in Surgery in the Philadelphia Polyclinic and College for Graduates in Medicine. With 909 illustrations, radiograms, drawings and photographs. J. B. Lippincott Company. Philadelphia and London. Price, $6.00.

A new work on fractures that bids fair to become a standard work on fractures. Throughout the volume the results of a large clinical experience are in evidence. The illustrations are excellent and numerous. It contains 29 chapters divided into general considerations, the operative treatment of closed fractures, then chapters on fractures of the various bones of the body, closing with a chapter on birth fractures and one on gunshot fractures. The mechanical features of the book are excellent. It is recommended as a complete, thorough and authoritative treatise on fractures.

THOSE ABOUT TRENCH. By Edwin Herbert Lewis, Ph. D., Professor of English and Dean of Faculty, Lewis Institute, Chicago. A novel of 326 pages. Cloth, $1.35. The MacMillan Company, New York. 1896.

This novel will be of interest to the physician because the principal character, "Trench," is a young Chicago physician, a professor in "Lister" college. Of independent fortune, he is of the type of studious, successful, medical men, so engrossed in his professional work that he has ignored everything in life but the materialism that appeals to the physical senses. Owning a building in Halsted street, he kept bachelor's hall there, maintained an office and "let" rooms to several medical students who formed a happy family in their devotion to the professor, though they represented half a dozen countries. In fact, one of the things that gives the book an unusual zest is the Babel of tongues, from Ojibway and Halsted street Yiddish to Chinese and Persian, that portrays the most cosmopolitan district west of Cairo.

The story introduces some social welfare interests, which shows that it is up to date, and a reasonable amount of love, without which it would not be a novel. The characters represent all religions, but Christianity is in a minority. It would appeal, perhaps, to a larger circle had the heroine secured a clear-cut adhesion to her religious views on the part of the doctor. But no one can say that it differs in this respect from what we see every day.

The action begins in that delightful region along the Sault Ste. Marie, where Mr. Lewis has spent many summer vacations. His affection for that Encampment on Neebish is summed up in the synonym, "Enchantment."

Much of the plot revolves about the west side of Chicago, with occasional forays the whole length of Halsted street, which extends from Edgewater to the Calumet River, and in its twenty-two miles epitomizes everything from Mayfair to Billingsgate. Some of the characters lead the action to far away Peshawar, Tashkent and Bokhara and meet in Sarajevo at the assassination of the Austrian crown prince, which set the world on fire. His description of that event is said to come from first hand authorities.